SLV-E500AP/E500CP/E500IT/E500UX/E500VP/E600B/E600VP/E700/E700AP/E700B /E700EX/E700IT/E700UX/E700VP/E800AP/E800BM/E800EE/E800EG/E800IT /E800NC/E800NP/E800VC

RMT-V159/V159A/V159B/V159D/V159E/V159H/V159J/V159K/V163/V163A

SERVICE MANUAL

UK Model
SLV-E500UX/E700UX
Italian Model
SLV-E500IT/E700IT/E800IT
Netherlands Model
SLV-E500AP/E700AP/E800AP
Germany Model
SLV-E500VP/E600VP/E700VP/E800VC
Spanish Model
SLV-E500CP/E800NP
Ireland Model
SLV-E700EX
East European Model
SLV-E800EE/E800EG
French Model
SLV-E600B/E700B/E800BM
North European Model
SLV-E700/E800NC

Photo : SLV-E800NP/RMT-V159

Remote commander is available as a unit, See page 5-1 for repair parts.

- **Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENTS IV (H MECHA) for MECHANICAL ADJUSTMENTS. (9-973-623-11)**

* The abbreviations of E500, E600, E700, and E800 contained in this service manual are indicated when these models are common to all their corresponding models as given below.

Abbreviated model name	All model names
E500	E500AP/E500CP/E500IT/E500UX/E500VP
E600	E600B/E600VP
E700	E700 : NC1/NC2, E700AP/E700B/E700EX/E700IT/E700UX/E700VP
E800	E800AP/E800BM/E800EE/E800EG/E800IT/E800NC/E800NP/E800VC

NC1/NC2 : North European

SPECIFICATIONS

System

Channel coverage
PAL:
CATV S01 – S05, S1 – S20 *(SLV-E700EX only)*
HYPER S21 - S41 *(SLV-E700EX only)*
UHF B21 – B69

RF output signal
UHF channels 28 – 55

Aerial out
75-ohm asymmetrical aerial socket

Inputs and outputs

EURO-AV (LINE 1)
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3

EURO-AV (LINE IN 2)
21-pin
Video input: pin 20
Audio input: pins 2 and 6

AUDIO OUT
Phono jack (2)
Rated output level: –7.5 dBs
(0 dBs = 0.775 Vrms)
Load impedance: 47 kilohms
Output impedance: less than 10 kilohms

General

Power requirements
220 – 240 V AC, 50 Hz

Power consumption
25 W

Operating temperature
5°C to 40°C

— continued on next page —

MICROFILM

VIDEO CASSETTE RECORDER

SONY®

Storage temperature
-20°C to 60°C

Dimensions
Approx. 430 x 103 x323 mm
(w/h/d)
including projecting parts and
controls

Mass
Approx. 5.2 kg

Supplied accessories

Remote commander (1)
R6 (size AA) batteries (2)
Aerial cable (1)
Audio cable (1)
Mains lead (1)

Design and specifications are subject to change without notice.

The remote commander used for each model is as follows.

- RMT-V159 : SLV-E800AP/E800EE/E800EG/E800NC/E800NP/E800VC MODEL
- RMT-V159A : SLV-E800BM MODEL
- RMT-V159B : SLV-E600VP/E700 : NC1/NC2, E700AP/E700VP MODEL
- RMT-V159D : SLV-E600B/E700B MODEL
- RMT-V159E : SLV-E500AP/E500CP/E500VP MODEL
- RMT-V159H : SLV-E800IT MODEL
- RMT-V159J : SLV-E700IT MODEL
- RMT-V159K : SLV-E500IT MODEL
- RMT-V163 : SLV-E700EX/E700UX MODEL
- RMT-V163A : SLV-E500UX MODEL

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SERVICE NOTE

1. REMOVAL OF DRUM ASSEMBLY

1) Remove the screw ① (P3×8)
2) Remove the shaft ground assembly ②.
3) Remove three screws ③ (P3×6).
4) Remove the drum assembly④.

Note: When attaching the drum assembly, be careful not to blur the contacting surface with fingerprint or like.

When attaching the shaft ground assembly, be careful not apply force to the spring section of it.

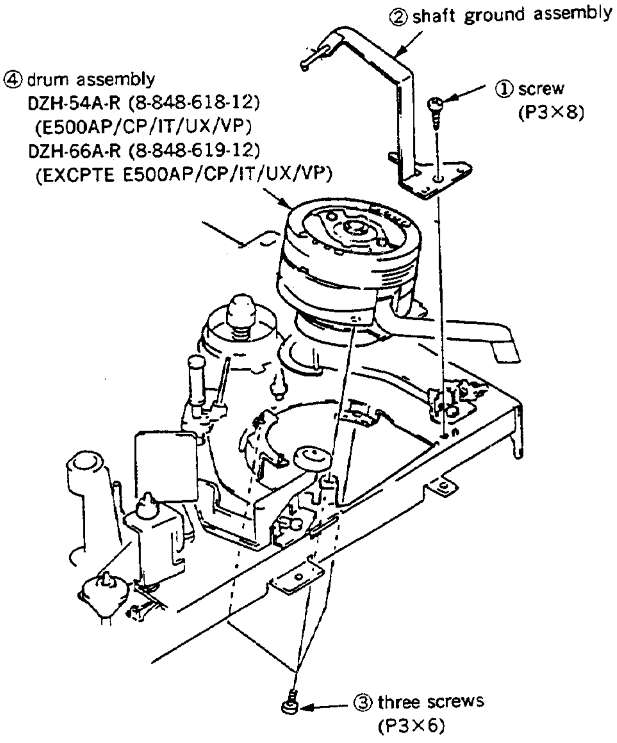

② shaft ground assembly
④ drum assembly
DZH-54A-R (8-848-618-12)
(E500AP/CP/IT/UX/VP)
DZH-66A-R (8-848-619-12)
(EXCPTE E500AP/CP/IT/UX/VP)
① screw
(P3×8)
③ three screws
(P3×6)

Fig.1.

2. UPPER DRUM REPLACEMENT

2-1. Removal of Upper Drum

1) Remove the screw ① (P3×8).
2) Remove the shaft ground assembly ②.
3) Completely remove the rotary upper drum board and desolder the soldering indicated by the arrows. (16 points)
4) Remove the screws ③ (PSW 3×8) and tape out the rotary upper drum assembly in the direction of arrow. (See Fig. 3.)
If it is difficult, remove by shaking the rotary upper drum gradually.
Note: If the drum can not be removed,check whether the solders have been removed or not again.

2-2. Mounting Upper Drum

1) Mount the rotary upper drum assembly by aligning marked ➡ with marked ⇛ of rotary transformer board (lower drum) so that the screw holes of both upper and lower drums match.

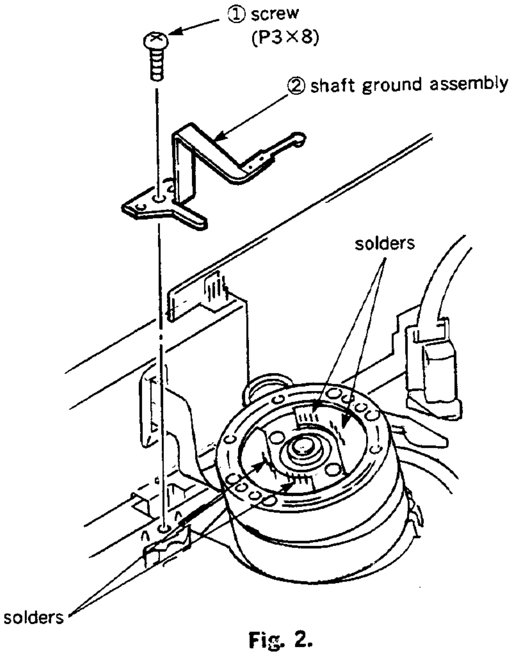

① screw
(P3×8)
② shaft ground assembly
solders
solders

Fig. 2.

Note: When inserting the rotary upper drum assembly into the lower drum, be careful not to blur the contacting surface with fingerprint or like.

2) If it is difficult, mount the upper drum by shaking it gradually.
Note: Be careful not to damage the head.
Make sure that the upper drum is tightly inserted.
3) Tighten two screws ③ (PSW3×8).
Note: Temporary tighten two screws, After making sure that upper drum is tightly inserted, tighten the screws.

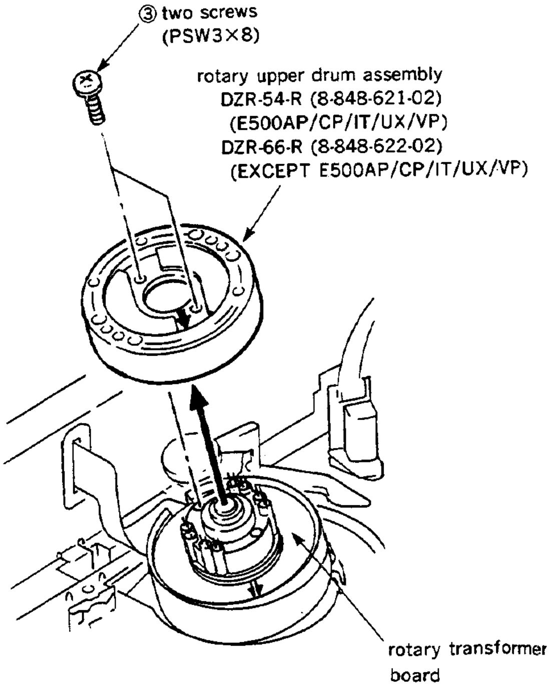

③ two screws
(PSW3×8)
rotary upper drum assembly
DZR-54-R (8-848-621-02)
(E500AP/CP/IT/UX/VP)
DZR-66-R (8-848-622-02)
(EXCEPT E500AP/CP/IT/UX/VP)
rotary transformer
board

Fig. 3.

4) Solder 16 points on the rotary upper drum board. (See Fig. 2.)
5) Fix the shaft ground assembly ② using the screw ① (P3×8) so that the protrusion of the shaft ground assembly end contacts the center of the drum shaft, (See Fig. 2.)
Note: When attaching the shaft ground assembly, be careful not to apply force to the spring section of it.
6) Tighten the screw ① (P3×8).

3. PERIODIC CHECK AND REPLACEMENT

In order to obtain the best performance from this unit and make full use of its capabilities, and to extend the life of the unit and tapes, it is recommended that the following periodic checks and maintenance be performed.

* The following must be done after every repair regardless of how many hours the user has operated the machine.

3-1. CLEANING OF ROTATING HEAD DISK ASSEMBLY

1) Press a chamois cloth (Jig Ref. No. J-9) which has been dipped in cleaning fludi (Jig Ref. No. J-8) lightly against the rotating drum assembly, then do the cleaning by slowly rotating the rotating head disk by hand. (Never try to clean by using the motor to turn it.)
2) Never try to clean by moving the chamois cloth at a vertical angle to the head tip. There is a very great danger of damaging the head tip if this is done.

3-2. CLEANING OF THE TAPE MOVEMENT SYSTEM

1) Clean the surfaces which the tape contacts during its movement (tape guide, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth that has been dipped in cleaning fluid.

3-3. CLEANING THE DRIVE SYSTEM

1) Clean the driving parts with a cloth that been dipped in cleaning fluid.

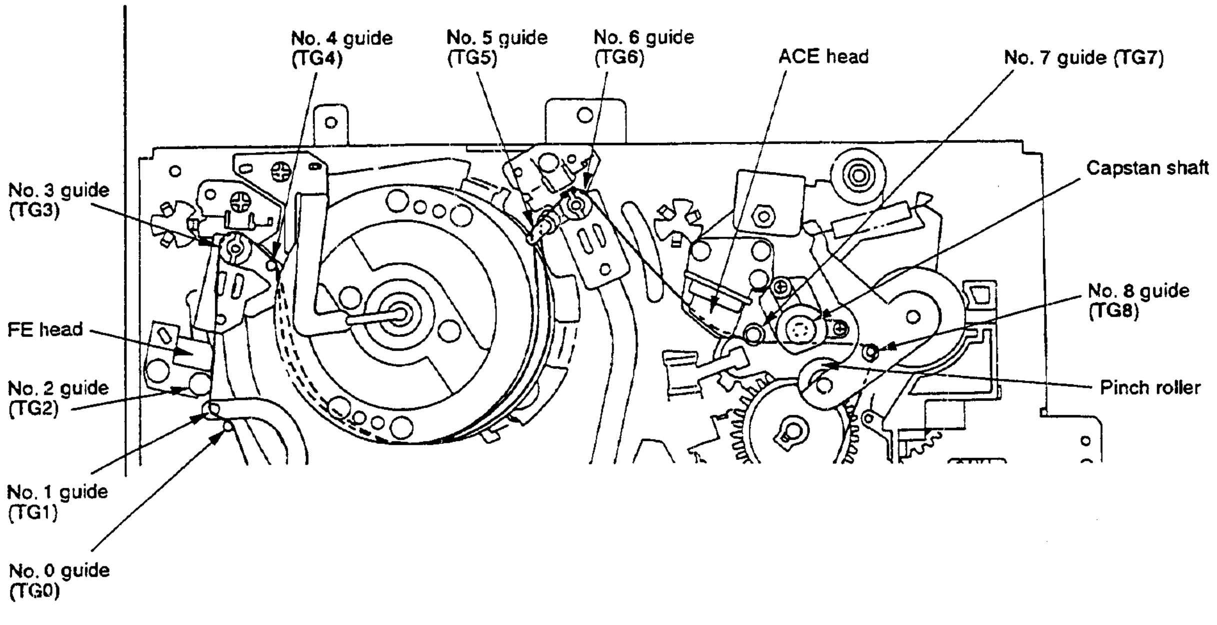


Fig. 4. Parts requiring cleaning

SLV-E500/E600/E700/E800 SERIES

SECTION 1
GENERAL

This section is extracted from SLV-700EX/UX instruction manual.

Welcome!

Thank you for purchasing the Sony Video Cassette Recorder (VCR). Here are some of the features you'll enjoy with your VCR:

- EASY SET UP that guides you through necessary VCR setups sequentially through the TV screen
- Optimum Picture Control (OPC) that automatically optimises recording and playback performance
- Dual Mode Shuttle (DMS) ring for easy playback and search operations
- VIDEO Plus+* system that lets you quickly and easily preset the VCR to record programmes

• VIDEO Plus+ and PlusCode are Trademarks of Gemstar Development Corp. VIDEO Plus+ system is manufactured under licence from Gemstar Development Corporation.

Compatible colour systems
This VCR is designed to record and play back using the PAL colour system. Recording of video sources based on other colour systems cannot be guaranteed.

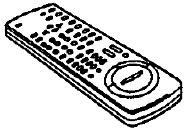
Checking your model name

The instructions in this manual are for the SLV-E700EX and SLV-E700UX. Check your model number by looking at the rear panel of your VCR. The SLV-E700EX is the model used for illustration purposes. Any difference in operation is clearly indicated in the text, for example, "*SLV-E700UX only.*"

Step 1 Unpacking

Check that you have the following items:

- **Remote commander**

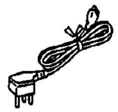


- **R6 (size AA) batteries**

- **Aerial cable**

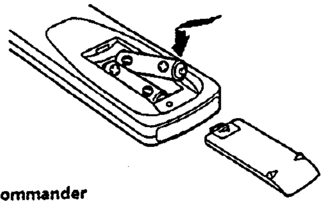
- **Audio cable**

- **Mains lead**



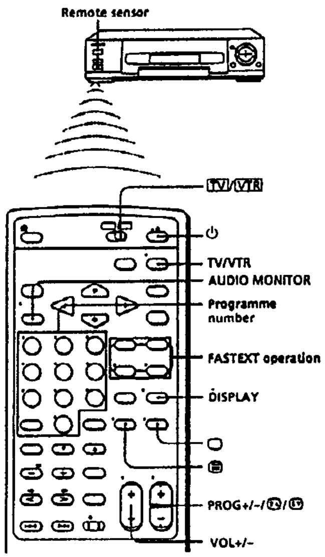
Step 2 Setting up the remote commander

Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.



Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your TV.


Remote sensor
TV/VTR
⏻
TV/VTR
AUDIO MONITOR
Programme number
FASTEXT operation
DISPLAY
○
⊜
PROG+/–/⊕/⊖
VOL+/–

To operate	Set TV/VTR to
the VCR	VTR and point at the remote sensor on the VCR
a Sony TV	TV and point at the remote sensor on the TV

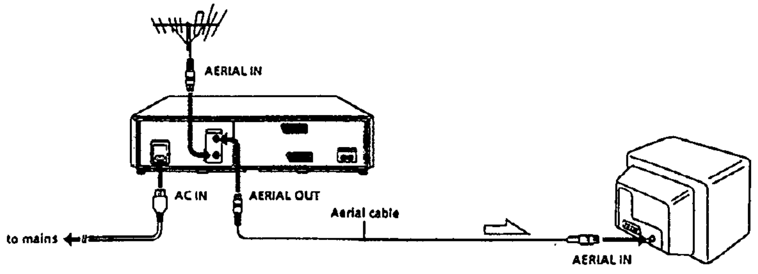
TV control buttons

To	Press
Turn the TV into standby or active mode	⏻
Select an input source of the TV either from aerial in or from line in	TV/VTR
Select the programme position of the TV	Programme number
Switch to TV mode (Teletext off)	○ (TV power/mode select)
Switch to Teletext mode	⊜ (Teletext)
Change the programme position of the TV	PROG +/–
Increase (+) or decrease (–) the volume of the TV	VOL +/–
Select the sound	AUDIO MONITOR
Use FASTEXT	FASTEXT operation
Get on-screen display	DISPLAY
Change the Teletext page	⊕/⊖

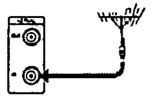
Notes

- With normal use, the batteries should last for approximately three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

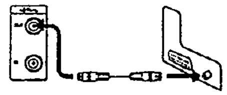
Step 3 Connecting the VCR


AERIAL IN
AC IN
AERIAL OUT
Aerial cable
to mains
AERIAL IN

1 **Disconnect the aerial input cable from your TV and connect it to AERIAL IN of the VCR.**

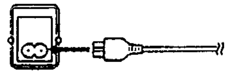


2 **Connect AERIAL OUT of the VCR and the aerial input of your TV using the supplied aerial cable.**



3 **Connect AC IN of the VCR and the mains supply using the mains lead.**

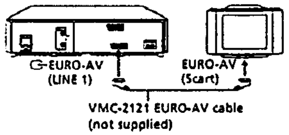
You've completed the basic hookup to watch and record TV programmes.



Additional connections

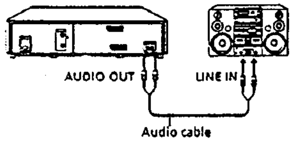
To a TV that has a EURO-AV (Scart) connector

This additional connection can improve picture and sound quality. Connect to the TV as shown on the right.


⊖EURO-AV (LINE 1)
EURO-AV (Scart)
VMC-2121 EURO-AV cable (not supplied)

To a stereo system

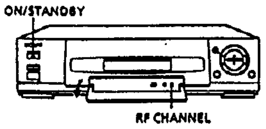
You can improve sound quality by connecting to a stereo system as shown on the right.

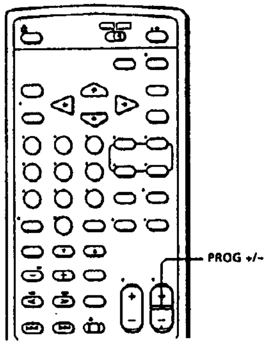

AUDIO OUT
LINE IN
Audio cable

Step 4

Tuning the TV to your VCR

If you have connected the VCR to your TV using the EURO-AV cable, skip this step.





1-3

1 ON/STANDBY **Press ON/STANDBY to turn on the VCR.**

2 RF CHANNEL **Press RF CHANNEL on the VCR.**

The factory-preset RF channel appears in the display window.
The VCR signal is output through this channel to the TV.

3 **Turn on your TV and select a programme position for video playback.**

4 **Tune the TV to the same channel as that shown in the display window so that a grey screen appears on the TV screen.**

Refer to your TV manual for tuning instructions.
If the grey screen does not appear clearly, see "To obtain a clear grey screen" on page 9.

5 RF CHANNEL **Press RF CHANNEL.**

You have now tuned your TV to the VCR. Whenever you play a tape, set the TV to the programme position selected in step 3 above.

To check to see if the TV tuning is correct

Select the programme position for video playback on the TV and press PROG +/–. If the TV screen changes to a different programme each time you press PROG +/–, the TV tuning is correct.

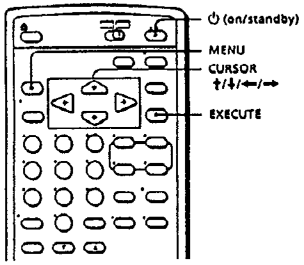
To obtain a clear grey screen

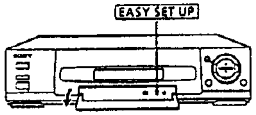
If the grey screen does not appear clearly in step 4 above, press PROG +/– in step 4, while the RF channel is displayed, so that another RF channel appears. Then tune the TV to the new RF channel until a clear grey screen appears.

1-4

Step 5 Setting up the VCR sequentially (EASY SET UP)

Before using the VCR for the first time, set up the VCR using the EASY SET UP feature of this unit.
Using the EASY SET UP, you can set the TV channels, guide channels for VIDEO Plus+, and clock, guided by the sequence indicated on the TV screen.


⏻ (on/standby)
MENU
CURSOR ↑/↓/←/→
EXECUTE

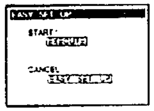


1 ⏻ **Press ⏻ (on/standby) to turn on the VCR.**

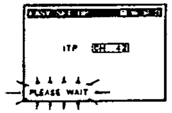
2 **Turn on your TV and select a programme position for video playback.**

3 EASY SET UP **Press EASY SET UP on the VCR.**
The following screen appears on the TV screen.

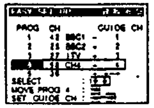
To cancel starting the EASY SET UP, press EASY SET UP.


EASY SET UP
START : EXECUTE
CANCEL : EASY SET UP

4 EXECUTE **Press EXECUTE.**
The ITP starts searching for all the receivable channels.
The ITP sorts the located channels appropriately and presets them to the programme positions. Some VIDEO Plus+ guide channels and station IDs may also be preset if the ITP can detect them.
During presetting, the channel being located is displayed on the TV screen.


EASY SET UP
ITP
PLEASE WAIT

When all the channels are preset, the following screen appears.

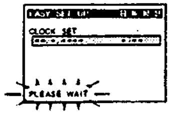

EASY SET UP
PROG
CH
GUIDE CH
BBC1
BBC2
ITV
CH4
SELECT
MOVE PROG
SET GUIDE CH

If necessary, you can add or disable the channels manually.
See "Tuning the VCR to TV channels manually" on page 14.

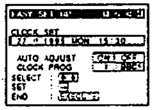
Note
Do not exit the EASY SET UP while the ITP is presetting channels.
If you do, repeat the EASY SET UP from the beginning.

5 CURSOR **Using CURSOR ↑/↓/←/→, set the VIDEO Plus+ guide channels that could not be preset automatically, and change the programme positions of the stations. (If not necessary, skip this step.)**
The setting procedures are the same as those described in "Setting up VIDEO Plus+ manually" on page 16 and "Changing the programme positions of the stations" on page 19.

6 EXECUTE **Press EXECUTE.**
The Auto Clock Set starts searching for a TV station that carries the time signal and sets the clock time automatically. The date is also set if the date data is transmitted from the TV station.


EASY SET UP
CLOCK SET
PLEASE WAIT

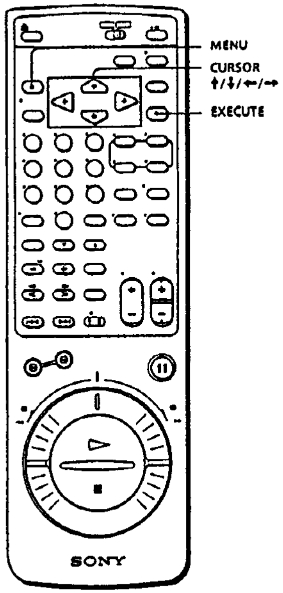
When the clock setting is completed, the following screen appears.
If the VCR does not receive the time signal from any station, "1.1. 1995 SUN 0:00" appears and AUTO ADJUST is set to OFF.


EASY SET UP
CLOCK SET
1995
AUTO ADJUST
CLOCK PROG
SELECT
SET
END

7 CURSOR **If necessary, adjust the date and/or time manually and change the station for Auto Clock Set using CURSOR ↑/↓/←/→.**
The setting procedures are the same as those described in "Setting the clock manually" on page 12.

8 EXECUTE **Press EXECUTE to finish the EASY SET UP operation.**
A programme position appears on the TV screen.
The station ID may also appear if the VCR has detected it.

Setting the clock manually


MENU
CURSOR ↑/↓/←/→
EXECUTE
SONY

Note

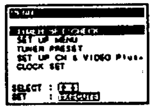
- The menu disappears automatically if you don't proceed for more than a few minutes.

Tip

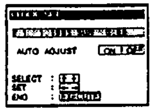
- To change the digits during setting, press CURSOR ← to return to the item to be changed, and select the digits using CURSOR ↑/↓.

You must set the time and date on the VCR to be able to use the timer recording features properly. You can set the VCR clock using the menu.

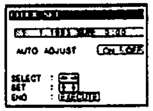
1 Press MENU.
The main MENU appears on the TV screen.


SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET
SELECT :
SET :

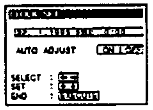
2 Press CURSOR ↑/↓ to move the cursor (▮) to CLOCK SET, then press EXECUTE.
The CLOCK SET menu appears.


AUTO ADJUST
SELECT :
SET :
END :

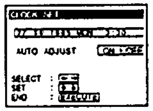
3 Press CURSOR → to highlight the day and the day of the week.


AUTO ADJUST
SELECT :
SET :
END :

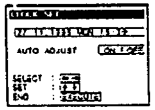
4 Press CURSOR ↑/↓ to set the day.
The day of the week is set automatically.


AUTO ADJUST
SELECT :
SET :
END :

5 Press CURSOR → to highlight the month and set the month using CURSOR ↑/↓.


AUTO ADJUST
SELECT :
SET :
END :

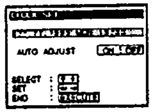
6 Set the year, hour and minutes in sequence, using CURSOR → to highlight the item to be set, and CURSOR ↑/↓ to select the digits.


AUTO ADJUST
SELECT :
SET :
END :

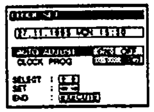
Tip

- If you set AUTO ADJUST to ON, the Auto Clock Set is activated whenever the VCR is turned off. The date and time is adjusted automatically by making reference to the time signal from the station whose programme position is displayed in the "CLOCK PROG" row.
  If you do not need the Auto Clock Set, highlight OFF.

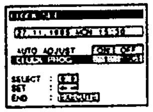
7 Press CURSOR → to confirm the setting.
The cursor (▮) appears in the leftmost column.


AUTO ADJUST
SELECT :
SET :
END :

8 Press CURSOR ↓ to move the cursor (▮) to AUTO ADJUST, then press CURSOR ←/→ to highlight ON.


AUTO ADJUST
CLOCK PROG
SELECT :
SET :
END :

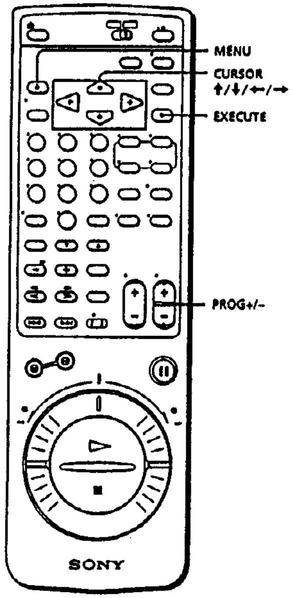
9 Press CURSOR ↓ to move the cursor (▮) to CLOCK PROG, then press CURSOR ←/→ repeatedly until the programme position of the station that carries the time signal appears.
If the VCR does not receive the time signal from any station, AUTO ADJUST returns to OFF automatically.


AUTO ADJUST
CLOCK PROG
SELECT :
SET :
END :

10 Press EXECUTE to start the clock.

Tuning the VCR to TV channels manually

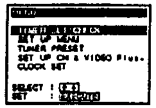
You may have preset the receivable channels in your area in the EASY SET UP procedure (page 10). If some channels could not be preset automatically, you can preset them manually; if there are unwanted channels among the preset ones, you can disable the channels.


MENU
CURSOR ↑/↓/←/→
EXECUTE
PROG+/-
SONY

Notes
- The menu disappears automatically if you don't proceed for more than a few minutes.
- The station IDs are not preset in manual tuning.

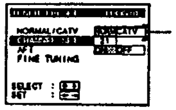
Presetting channels manually

1 Press MENU.
The main MENU appears on the TV screen.


MENU
SET UP MENU
TUNER PRESET
SET UP ON & VIDEO Plus+
CLOCK SET
SELECT :
SET :

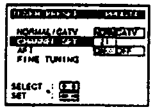
2 Press CURSOR ↑/↓ to move the cursor (▮) to TUNER PRESET, then press EXECUTE.
The TUNER PRESET menu appears.

e.g. SLV-E700EX

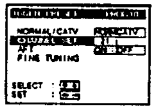

NORMAL/CATV
AFT
FINE TUNING
SELECT :
SET :

NORMAL/CATV selection is not provided with the SLV-E700UX.

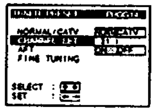
3 *(SLV-E700EX only)*
Press CURSOR ↑/↓/←/→ to move the cursor (▮) to NORMAL/CATV, then highlight NORM.
To preset CATV channels, highlight CATV.


NORMAL/CATV
AFT
FINE TUNING
SELECT :
SET :

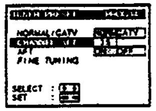
4 Press CURSOR ↑/↓ to move the cursor (▮) to CHANNEL SET.


NORMAL/CATV
AFT
FINE TUNING
SELECT :
SET :

5 Press PROG +/– to select the programme position.


NORMAL/CATV
AFT
FINE TUNING
SELECT :
SET :

6 Press CURSOR → to start tuning.
The VCR starts searching for a channel and displays the first one it finds on the TV screen. Press CURSOR ←/→ repeatedly until the channel you want is displayed.
The channels are scanned in the following order:
UHF B21 - B69
CATV S1 - S20 *(SLV-E700EX only)*
HYPER S21 - S41 *(SLV-E700EX only)*
CATV S01 - S05 *(SLV-E700EX only)*


NORMAL/CATV
AFT
FINE TUNING
SELECT :
SET :

If you know the number of the channel you want, press the number buttons. For example, for channel 43, first press "4" and then press "3."

7 To allocate another channel to another programme position, repeat steps 5 and 6.

8 Press EXECUTE to store all the allocated channels.

Disabling unwanted programme positions

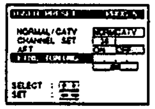
After tuning the TV channels, you can disable unused programme positions. Positions that are disabled will be skipped later when you press the PROG +/– buttons.

1 Press MENU, then select TUNER PRESET and press EXECUTE.
2 Select CHANNEL SET.
3 Press PROG +/– until the programme position you want to disable appears beside "PROG" on the TV screen.
4 Press number button "0" twice to display the number "0" beside CHANNEL SET.
5 Repeat steps 3 and 4 for other positions you want to disable.
6 Press EXECUTE.

If the picture is not clear

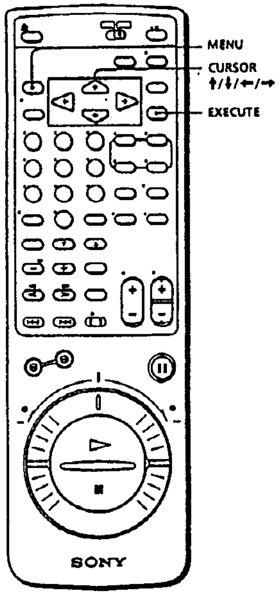
Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture is not clear, you may also use the manual tuning function.

1 Press PROG +/– to select the programme number for which you cannot obtain a clear picture.
2 Press MENU, then select TUNER PRESET and press EXECUTE.
3 Select FINE TUNING. The fine tuning meter appears.


NORMAL/CATV
CHANNEL SET
AFT
SELECT :
SET :

4 Press CURSOR ←/→ to get a clearer picture, then press EXECUTE.
Note that the AFT (Auto Fine Tuning) setting switches to OFF.

Setting up VIDEO Plus+ manually


MENU
CURSOR ↑/↓/←/→
EXECUTE
SONY

Note
- The menu disappears automatically if you don't proceed for more than a few minutes.

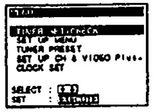
VIDEO Plus+ is a feature in Sony VCRs that simplifies the task of programming the VCR to make timer recordings.

How VIDEO Plus+ works
Whenever you want to record a TV programme, all you need to do is look up the programme's "PlusCode," a number assigned to each programme that's published in TV guide magazines. Then, just enter the PlusCode of the programme you want and the VCR is automatically programmed to record that show. It's that simple. With VIDEO Plus+, you no longer have to go through a lengthy and often repetitive procedure when you set start and stop times, channel numbers, and dates. All this information is automatically sent to your VCR when you enter the programme's PlusCode.

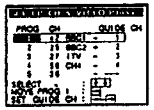
- If you want to record satellite broadcasts using VIDEO Plus+, see page 18.

Setting the guide channels

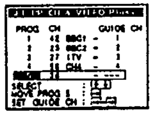
1 Press MENU.
The main MENU appears on the TV screen.


SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET
SELECT
SET

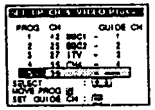
2 Press CURSOR ↑/↓ to move the cursor (▮) to SET UP CH & VIDEO Plus+, then press EXECUTE.
The SET UP CH & VIDEO Plus+ menu appears.
The preset channels are displayed on the screen. The station IDs and guide channels also appear if the VCR detected them in the EASY SET UP. "—" in the GUIDE CH column means that the guide channel has not been preset.


PROG
CH
GUIDE CH
SELECT
MOVE PROG
SET GUIDE CH

3 Press CURSOR ↑/↓ to move the cursor (▮) to the row on which you want to set the guide channel.
To display other pages for programme positions 6 to 30, press CURSOR ↑/↓ repeatedly.

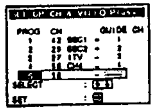

PROG
CH
GUIDE CH
SELECT
MOVE PROG
SET GUIDE CH

4 Press CURSOR → to highlight the TV channel and guide channel.

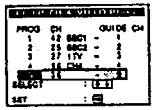

PROG
CH
GUIDE CH
SELECT
MOVE PROG
SET GUIDE CH

Notes
- If you use a satellite tuner connected via the EURO-AV (Scart) connector, leave the "GUIDE CH" column blank (—).
- If you inadvertently entered a guide channel number, press CURSOR ↑/↓ repeatedly to reset the "GUIDE CH" column to "—". "—" appears between 1 and 255.
- The VCR does not allow entering the guide channel number, if the same number has been set.

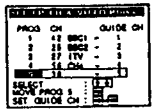
5 Press CURSOR → to highlight the guide channel only.


PROG
CH
GUIDE CH
SELECT
SET

6 Press CURSOR ↑/↓ to select the guide channel number assigned in the programme guide.


PROG
CH
GUIDE CH
SELECT
SET

7 Press CURSOR → to confirm the setting.
The cursor (▮) appears in the leftmost column.


PROG
CH
GUIDE CH
SELECT
MOVE PROG
SET GUIDE CH

8 To set the guide channel of another station, repeat steps 3 to 7.

If you want to change the programme positions of the stations, proceed to step 2 of "Changing the programme positions of the stations" on page 19.

9 When you've finished, press EXECUTE to exit.

Setting up VIDEO Plus+ manually (continued)

Notes

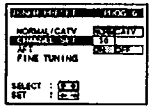
- With this operation, you have set up the VCR for satellite broadcasts. When you watch and record a satellite broadcast, select the desired channel on the satellite tuner.
- If you have two satellite tuners connected via the EURO-AV (LINE 1) and EURO-AV (LINE IN 2) connectors, the VIDEO Plus+ system automatically uses the satellite tuner connected via the EURO-AV (LINE 1) connector .

Setting up VIDEO Plus+ for Satellite Broadcasts

When your satellite tuner is connected via the AERIAL IN connector, first you have to set the programme position for each satellite channel using the TUNER PRESET menu. Then set the guide channel number for each satellite channel using the SET UP CH & VIDEO Plus+ menu.

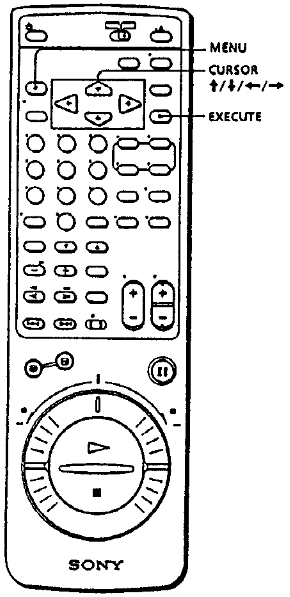
If your satellite tuner is connected via the EURO-AV (Scart) connector, you don't have to set programme positions nor guide channel numbers for satellite channels. Skip the following operations.

1 Turn on the satellite tuner.
2 Press MENU, then select TUNER PRESET and press EXECUTE.
3 Press PROG +/– to select a programme position you want to use for watching a satellite channel.
4 Select CHANNEL SET, then press CURSOR → to tune the VCR to the satellite tuner.
The channel number displayed beside CHANNEL SET is used for receiving all satellite broadcasts from the satellite tuner.



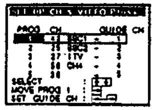
5 Press PROG +/– to select another programme position for another satellite channel, and press the number buttons to enter the same channel number as the one displayed in step 4.
Repeat this step for all satellite channels.
6 Set the guide channel number for each programme position assigned to the satellite channel, following the procedures in "Setting the guide channels" on pages 16 and 17.

Changing the programme positions of the stations

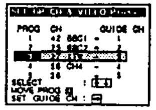


After setting the channels and VIDEO Plus+ guide channels, you can change the programme positions which are automatically assigned, as you like.

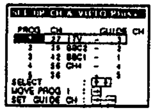
1 Press MENU, select SET UP CH & VIDEO Plus+ using CURSOR ↑/↓, and press EXECUTE.
The SET UP CH & VIDEO Plus+ menu appears.



2 Press CURSOR ↑/↓ to highlight the row on which you want to change the programme position, then press CURSOR →.
The TV channel and guide channel are highlighted.
To display other pages for programme positions 6 to 50, press CURSOR ↑/↓ repeatedly.



3 Press CURSOR ↑/↓ until the channel and guide channel row moves to the desired programme position, then press CURSOR ←.
The two rows exchange the positions.

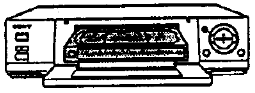


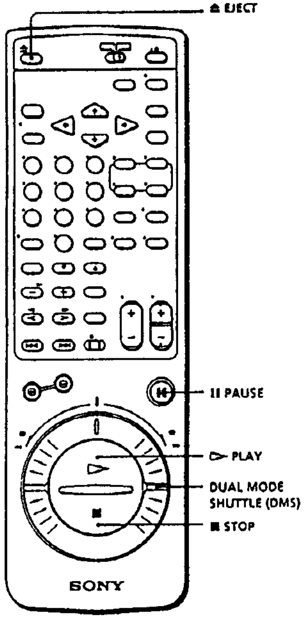
4 To change the programme position of another station, repeat steps 2 and 3.

5 When you've finished, press EXECUTE to exit.

Basic Operations

Playing a tape





Tip
- For further information on searching and playback functions, see "Playing/searching at various speeds" on page 33.

This section shows you how to play back a video tape.

1 **Turn on your TV and tune in to the VCR:**
- If the TV is connected to the VCR using the EURO-AV cable, set the TV to video input.
- If the TV is connected to the VCR using only the aerial cable, set the TV to the programme position for the VCR.

2 **Open the drop down panel and insert a tape.**
The VCR turns on automatically. The tape starts playing automatically if its safety tab has been removed. (See page 25.)

3 **Press ▷ PLAY to start playing.**
When the tape reaches the end, the VCR automatically rewinds it to the beginning. (The power remains on.)

Additional tasks

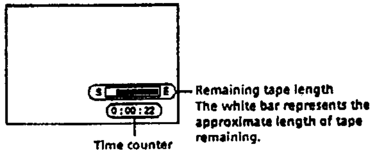
To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Search forward	Turn the DUAL MODE SHUTTLE (DMS) ring to ⊖ during playback
Search backward	Turn the DMS ring to ⊖ during playback
Fast-forward the tape	Turn the DMS ring to ►► FF during stop
Rewind the tape	Turn the DMS ring to ◄◄ REW during stop
Eject the tape	⏏ EJECT

Notes
- When a tape is reinserted, the counter returns to "0H00M00S."
- The counter will not work on tape portions with no recording.

Notes
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.
- To play a tape in stereo, you must use the EURO-AV (LINE 1) connection or AUDIO OUT connection.
- If AUDIO MIX in the SET UP MENU is set to ON, the AUDIO MONITOR button doesn't work.

Displaying the remaining tape length and time counter

Press DISPLAY to turn the display on or off.


S
E
0:00:22
Remaining tape length
The white bar represents the approximate length of tape remaining.
Time counter

Using the time counter

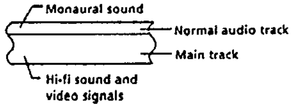
At the point on a tape that you want to find later, press COUNTER RESET to reset the counter to"0H00M00S." When you rewind or advance the tape to this point, refer to the counter.

Playing stereo and bilingual programmes

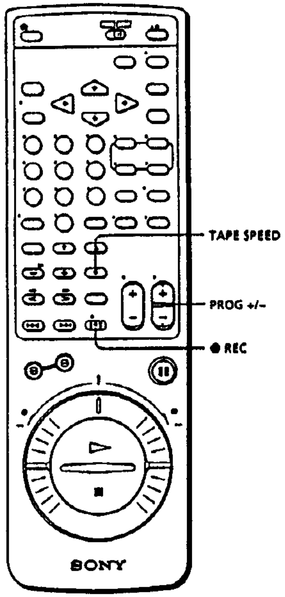
Press AUDIO MONITOR to select the desired sound. Each press of the button changes the display on the VCR and TV screen.

To listen to a		Press AUDIO MONITOR until	
Stereo tape	Bilingual tape	The TV screen shows	The display window indicator shows
Stereo	Main and sub sounds	"STEREO"	"STEREO"
Left channel	Main sound	"LCH"	"MAIN/L"
Right channel	Sub sound	"RCH"	"SUB/R"
Standard sound (monaural)	Standard sound	No indication	No indication

How sound is recorded on a video tape
This VCR records sound onto two different tracks. High-fidelity sound (usually stereo) is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.



Recording TV programmes



This section shows you how to record TV programmes in the most basic way: manual recording. With manual recording, you start the VCR recording when the programme begins, then stop it when the programme ends. The VCR also provides the following ways of recording:

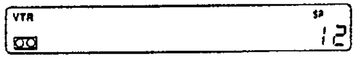
- Manually start recording, then stop it automatically—"Recording using the quick timer" (page 23)
- Automatically start and stop recording—"Recording TV programmes using the timer" (page 26)
- Automatically start and stop recording by simply entering the "PlusCode"—"Recording TV programmes using VIDEO Plus+" (page 29)

1 Turn on your TV and tune in to the VCR:
- If the TV is connected to the VCR using the EURO-AV cable, set the TV to video input.
- If the TV is connected to the VCR using only the aerial cable, set the TV to the programme position for the VCR.

2 Open the drop down panel and insert a tape with its safety tab in place.

3 Select the desired programme position by pressing PROG +/–.

4 Select the tape speed, SP (standard play) or LP (long play), by pressing TAPE SPEED.
See "To select tape speeds" on the next page.



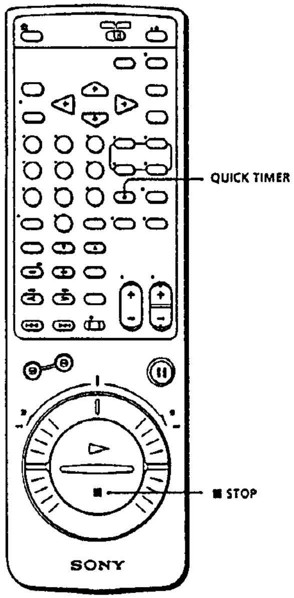
5 Start recording by pressing ● REC.
When the tape reaches the end, the VCR automatically rewinds it to the beginning.

To stop recording
Press ■ STOP.

Notes
- If you insert a tape with its safety tab removed, the VCR starts playing. To record on this tape, cover the tab hole.
- If you've inserted a tape with its safety tab removed, the VCR ejects it when you press the ● REC button.

Tip
- To select programme positions, you can also use the number buttons on the remote commander. For two-digit numbers, press the -/-- (ten's digit) button followed by the number buttons.

Tips
- To cut out an unwanted scene while recording, press ❚❚ PAUSE, turn the DUAL MODE SHUTTLE ring on the VCR to rewind the tape to the beginning of the unwanted scene, then press ❚❚ PAUSE to resume recording.
- The display appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV.



To select tape speeds
When recording, select either SP or LP. LP provides recording time twice as long as SP. However, SP provides better picture quality. You can mix SP and LP on the same tape. When playing back, the VCR automatically detects the tape speed. See the table below for the maximum recording/playback time in each speed.

Tape type	Maximum recording/playback time	
	SP	LP
E-300	5 hrs.	10 hrs.
E-240	4 hrs.	8 hrs.
E-180	3 hrs.	6 hrs.
E-120	2 hrs.	4 hrs.
E-60	1 hr.	2 hrs.

Recording using the quick timer

The quick timer enables you to record for a specified period of time in intervals of 30 minutes. Once you specify the recording time, the VCR automatically stops recording. Before you begin, check that the clock is set correctly.

After you start recording, press QUICK TIMER until the desired duration appears in the display window. The TIMER indicator on the VCR lights up. Each press increases the recording duration in increments of 30 minutes as shown below.

→ 0:00 → 0:30 → 1:00 ······→ 10:30 → 11:00

The recording duration decreases minute by minute to 0:00, then the VCR turns off automatically.

To stop recording
To stop quick-timer recording while the VCR is recording a programme, press ■ STOP.

To extend the recording duration while recording
Press QUICK TIMER until the desired duration appears in the display window.

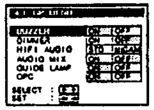
Watching a TV programme while recording another

You can watch a TV programme and record another at the same time.
1 Press TV/VTR on the top right of the remote commander to turn off the VTR indicator in the display window.
2 Select the desired programme position on the TV.

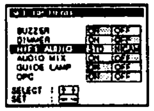
Recording stereo and bilingual programmes in NICAM system

This VCR receives and records stereo and bilingual programmes based on the NICAM system. When NICAM broadcasts are received, the STEREO indicator appears in the display window; when stereo programmes are received, the STEREO indicator appears in the display window; when bilingual programmes are received, the MAIN/L indicator lights up in the display window.

1 Press MENU and select SET UP MENU.



2 Set HIFI AUDIO to NICAM by pressing CURSOR ↑/↓/←/→.



Tip

- When you set HIFI AUDIO to NICAM, the stereo or bilingual sound is recorded on the hi-fi audio track and the standard sound is recorded on the normal audio track.

3 Press EXECUTE to store the setting.

Using the NICAM setting, NICAM broadcasts are recorded as in the following table.

Track	Sound recorded	
	Stereo	Bilingual
Hi-fi audio Left channel	Left channel	Main
Hi-fi audio Right channel	Right channel	Sub
Normal audio (monaural)	Standard (usually the mixed sound of left and right channels)	Standard (usually the main sound)

Note

- If you set HIFI AUDIO to STD, the standard sound is recorded on both the hi-fi and normal audio tracks. (You cannot select the listening sound using AUDIO MONITOR.)

To monitor stereo and bilingual programmes while recording
Set HIFI AUDIO to NICAM. Press AUDIO MONITOR to select the desired sound.

Stereo programmes

To listen to	Press AUDIO MONITOR until	
	The TV screen shows	The display window shows
Stereo sound	"STEREO"	"STEREO"
Standard sound	No indication	No indication

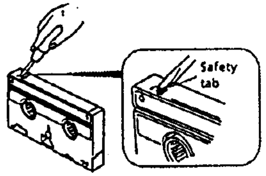
Bilingual programmes

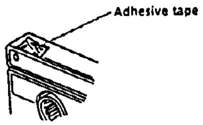
To listen to	Press AUDIO MONITOR until	
	The TV screen shows	The display window shows
Main sound	"MAIN"	"MAIN/L"
Sub sound	"SUB"	"SUB/R"
Main and sub sounds	"MAIN/SUB"	"MAIN/L, SUB/R"
Standard sound	No indication	No indication

Saving a recording

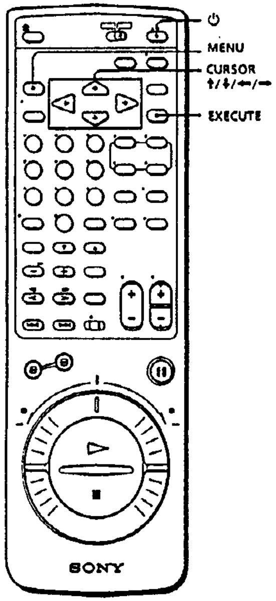
Video tapes have a safety tab to protect against accidental recording. To prevent accidental erasure of a recording, break off the safety tab with a screwdriver or other tool. A tape with its safety tab removed ejects if you try to record on it.

To record on a tape with its safety tab removed, cover the tab hole with adhesive tape.





Recording TV programmes using the timer

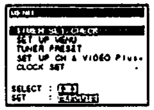

⏻
MENU
CURSOR ↑/↓/←/→
EXECUTE
SONY

This section shows you how to let the VCR automatically start and stop recording TV programmes. You can preset up to eight programmes within a one month time frame.

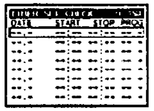
Before you start...
- Check that the VCR's clock is set correctly.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and tune in to the VCR.

---

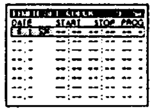
1 **Press MENU.**


MENU
TIMER SET/CHECK
SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET
SELECT :
SET : EXECUTE

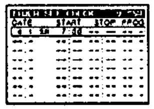
2 **Select TIMER SET/CHECK by pressing CURSOR ↑/↓, then press EXECUTE.**
The TIMER SET/CHECK menu appears.
If the clock needs to be set, "PLEASE SET THE CLOCK" appears on the screen and the VCR automatically enters the clock setting mode.


TIMER SET/CHECK
DATE START STOP PROG

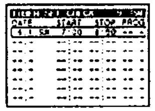
3 **Set the date to start recording.**
1. Press CURSOR → to highlight the date.
   Make sure today's date is displayed. If it isn't, adjust the clock.
2. Press CURSOR ↑/↓ to set the date.
   The day of the week is set automatically.


TIMER SET/CHECK
DATE START STOP PROG

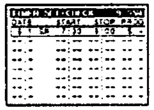
4 **Set the time to start recording.**
1. Press CURSOR → to highlight the hour under "START," then press CURSOR ↑/↓ to set the hour.
2. Press CURSOR → to highlight the minutes under "START," then press CURSOR ↑/↓ to set the minutes.


TIMER SET/CHECK
DATE START STOP PROG

5 **Press CURSOR →, then set the time to stop recording in the same way.**


TIMER SET/CHECK
DATE START STOP PROG

6 **Press CURSOR →, then select the programme position by pressing CURSOR ↑/↓.**


TIMER SET/CHECK
DATE START STOP PROG

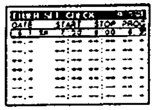
Tips
- To set the programme position, you can also use PROG +/– or number buttons.
- To record a video source from the ⇥ EURO-AV (LINE 1) or ⇥ EURO-AV (LINE IN 2) connector, press INPUT SELECT to display "LINE1" or "LINE2" in the "PROG" position.

Tip
- To set the recording tape speed, you can also use TAPE SPEED.

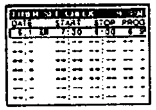
Tip
- To change the digits during setting, press CURSOR ← to return to the item to be changed, and select the digits using CURSOR ↑/↓.

Note
- If the power is interrupted for more than one hour while the VCR is standing by for recording, the timer settings are cleared. Reset the timer.

7 **Press CURSOR →, then select the tape speed, SP or LP, by pressing CURSOR ↑/↓.**
See "To select tape speeds" on page 23.


TIMER SET/CHECK
DATE START STOP PROG

8 **To confirm your programme, press CURSOR →.**
The cursor (▮) appears in the leftmost column.
To preset another timer setting, move the cursor to the next line using CURSOR ↓, and repeat steps 3 to 7.


TIMER SET/CHECK
DATE START STOP PROG

9 **After making the desired timer settings, press EXECUTE.**

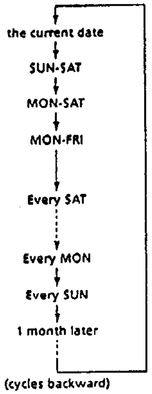
10 **Press ⏻ (on/standby) to turn off the VCR.**
The TIMER indicator on the VCR lights up and the VCR stands by for recording.
The VCR automatically turns on and starts recording at the preset start time, and turns off at the preset stop time.

To stop recording
To stop while the VCR is recording a programme, press ■ STOP.

Daily/weekly recording

Daily recording records the same programme every day of the week; weekly recording records the same programme on the same day, every week.

When you set the date to start recording in step 3 above, press CURSOR ↓ until the desired day appears. Each time you press the button, the indication changes as shown on the left.


the current date
SUN-SAT
MON-SAT
MON-FRI
Every SAT
Every MON
Every SUN
1 month later
(cycles backward)

Notes

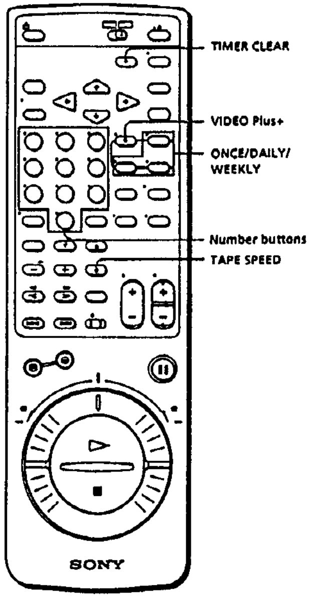
- If recording times overlap due to a PDC timer shift, the programme that was broadcast first has priority. The second programme will begin to record only when the first programme has finished.
- If the PDC signal is too weak or the broadcasting station failed to transmit PDC signals, the VCR will record the programme without using the PDC function even if the PDC indicator is lit in the display window.

Timer recording with PDC signals

The broadcast system transmits PDC (Programme Delivery Control) signals with its TV programmes. These signals ensure that your timer recordings are made regardless of broadcast delays, early starts or broadcast interruptions on that day. When setting the timer, make sure to enter the start time exactly as indicated in the TV programme guide, otherwise the PDC function will not work.

1 If the TIMER indicator on the VCR is lit, press ⏻ to release the VCR from standby and turn it on.
2 While the VCR is turned on, press PDC on the remote commander. The PDC indicator lights up in the display window on the VCR.
3 If you turned off the TIMER indicator in step 1, press ⏻. The TIMER indicator lights up and the VCR returns to recording standby. Once you switch on the PDC function, it works on all timer settings that are set to programmes with PDC signals.

Recording TV programmes using VIDEO Plus+

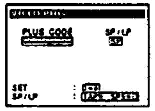


This section shows you another way of timer recording: recording using VIDEO Plus+. This allows you to record TV programmes more easily. Just enter the programme's "PlusCode," and the VCR will automatically record the programme. You can preset up to eight programmes within a one month time frame. To take advantage of this feature, you must first set up your VCR and assign programme positions to the various guide channels. For details, see "Setting up VIDEO Plus+ manually" on page 16.

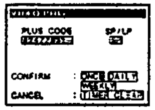
Before you start...

- Check that the VCR's clock is set correctly.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and tune in to the VCR.

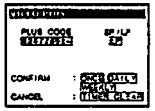
1 Press VIDEO Plus+.
The VIDEO PLUS menu appears on the TV screen.
If the clock needs to be set, "PLEASE SET THE CLOCK" appears on the screen and the VCR automatically enters the clock setting mode.



2 Use the number buttons to enter the desired programme's PlusCode.
If you make a mistake, press TIMER CLEAR and enter the correct number.



3 Select the tape speed, SP or LP, by pressing TAPE SPEED.



(continued)

Recording TV programmes using VIDEO Plus+ (continued)

Tip

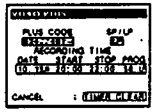
- To exit from the VIDEO Plus+ mode, press VIDEO Plus+ before pressing ONCE, DAILY or WEEKLY in step 5.

Notes

- You cannot set VIDEO Plus+ in the following cases:
  - When the VCR is turned off.
  - While recording using the timer or quick timer.
- The timer will not accept settings in the following cases:
  - When you select DAILY for a Saturday or Sunday programme.
  - When you select DAILY or WEEKLY for a programme more than seven days ahead.
  - When you enter the PlusCode of a programme that has already ended.
- If the VCR does not accept the setting, check the PlusCode again and change it repeating from step 2.

4 Press ONCE, DAILY or WEEKLY according to the following table.

To record the programme	Press
Only once	ONCE
Monday to Friday at the same scheduled time	DAILY
Every week at the same scheduled time	WEEKLY



The recording information appears on the TV screen: date, programme start and stop times, programme position number and tape speed.
Check that the information is correct. If it is not, press TIMER CLEAR to cancel the setting.
To preset another timer setting, repeat steps 2 to 5.

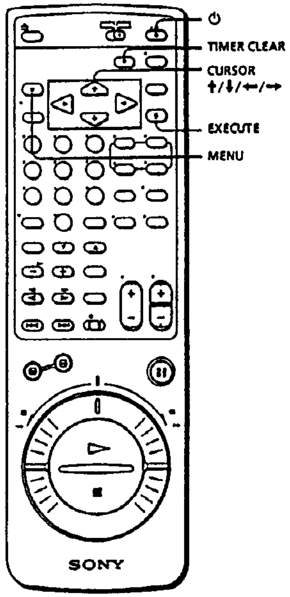
5 Press ⏻ to turn off the VCR.
The TIMER indicator on the VCR lights up and the VCR stands by for recording.
The VCR automatically turns on, records the programme and turns off.

To stop recording
To stop while the VCR is recording a programme, press ■ STOP.

To record satellite broadcasts
If you connect the satellite tuner and the VCR, you can record satellite programmes.

1 Turn on the satellite tuner.
2 On the satellite tuner, select the satellite programme for which you wish to make a timer setting.
3 Repeat the steps described above.
4 Keep the satellite tuner turned on until the VCR finishes recording the satellite programme for which you have made a timer setting.

Checking/changing/cancelling timer settings



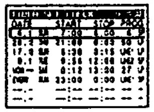
This section shows you how to check, change and cancel the timer settings after you've stored them in the VCR.

Before you start...

- Turn on your TV and tune in to the VCR.

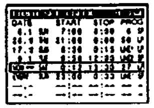
1 Press ⏻ (on/standby) to turn on the VCR.

2 Press MENU and select TIMER SET/CHECK. Then press EXECUTE.
The TIMER SET/CHECK menu appears on the TV screen.



3 Check the timer settings in the list.

- If you do not want to change or cancel the settings, press ⏻ to return to recording standby.
- If you want to change or cancel the settings, press CURSOR ↑/↓ to move the cursor (▮) to the setting you want to change or cancel.



4 Change or cancel the timer setting:

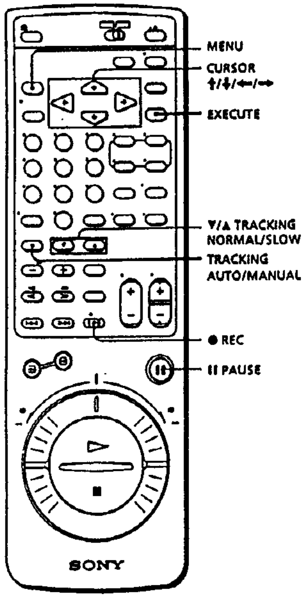
- To change the setting, press CURSOR ←/→ to highlight the item you want to change, and reset it using CURSOR ↑/↓. Then, press CURSOR → repeatedly until the cursor appears in the leftmost column.
- To cancel the setting, press TIMER CLEAR.

5 Press EXECUTE.
The VCR returns to the original screen. If there are any other timer settings left in the the TIMER SET/CHECK menu, press ⏻ to return to recording standby.

To check the timer settings during timer recording
Press MENU and select TIMER SET/CHECK. After checking, press EXECUTE to turn off the display.

Adjusting the picture

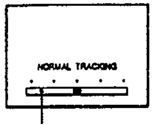
The VCR automatically adjusts the picture for the best possible playback or recording. If, however, you find the automatic adjustment unsatisfactory, you can adjust the picture manually.



Adjusting the tracking

Though the VCR automatically adjusts the tracking when playing a tape (the AUTO TRACKING indicator flashes in the display window, then lights steadily), distortion may occur if the tape was recorded in poor condition. If so, manually adjust the tracking condition.

Press the ▼/▲ TRACKING NORMAL/SLOW buttons to display the tracking meter. The distortion should disappear as you press one of the two buttons. If you cannot get a clear picture with manual adjustment, press TRACKING AUTO/MANUAL to return to automatic adjustment.



Tracking meter

About Optimum Picture Control (OPC)

Optimum Picture Control (OPC) automatically improves recording and playback quality by adjusting the VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you leave OPC ON on the SET UP MENU screen (with the OPC indicator in the display window lit).

To use OPC during playback
The OPC function automatically works on all types of tapes, including rental tapes. You can play a tape using the OPC function even if the tape was not recorded with it.

To use OPC while recording
Whenever you insert a tape and first start recording, the VCR adjusts to the tape using the OPC function (the OPC indicator flashes rapidly). This adjustment is retained until the tape is ejected. There is a short delay before the VCR actually starts recording while the VCR analyzes the tape.

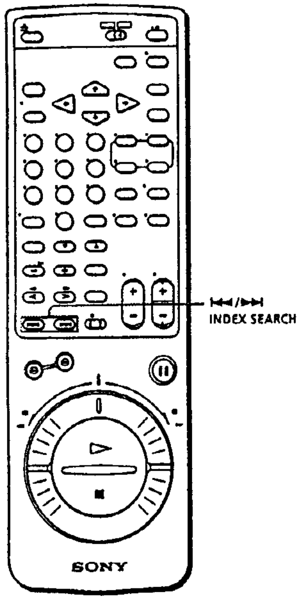
If you want to start recording precisely the first time you record, set the VCR to recording pause mode (the OPC indicator flashes slowly) and press ● REC to let the VCR analyze the tape. When the OPC indicator stops flashing, press II PAUSE to start recording. Recording begins immediately.

To deactivate the OPC
Press MENU and select SET UP MENU, then set OPC to OFF. The OPC indicator in the display window goes off.

Notes
- Tapes recorded using the OPC function are played back normally on VCRs that do not have the OPC function.
- Press II PAUSE to start recording after the OPC indicator stops flashing. If you start recording before the OPC indicator stops flashing, the OPC function is cancelled.

Searching using the index function

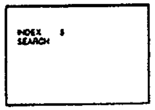
The VCR automatically marks an index signal at the point where recording starts (with the exception of when you start recording from recording pause). Use this as a reference to find the beginning of the recording. Since the index number indicates the relative position from the current position, specify how many index signals ahead or behind the specific index signal is from the current position.



1 **Insert an indexed tape into the VCR.**

2 **Press the I◄◄/►►I INDEX SEARCH buttons repeatedly until the index number you want appears on the TV screen:**
- To locate succeeding programmes, press ►►I INDEX SEARCH.
- To locate preceding programmes, press I◄◄ INDEX SEARCH.

  The VCR starts searching and the index number on the TV screen counts down to zero. Playback starts automatically from that point.



Additional instructions about timer recording

This section gives additional information about timer recording which you need after you have stored timer settings in the VCR.

To use the VCR while recording

You can do the following tasks during timer recording.

To	Press
Reset the counter to "0H00M00S"	COUNTER RESET
Display tape information on the TV screen	DISPLAY
Check the timer settings	MENU, and select TIMER SET/ CHECK
Watch another TV programme	TV/VTR (See "Watching a TV programme while recording another" on page 23.)

Using the VCR before timer recording begins

Press ⏻. The TIMER indicator on the VCR goes off and the VCR is ready for use.
After using the VCR, press ⏻ again to turn on the TIMER indicator on the VCR. Remember to reset the VCR to stand by for recording before the time you've set the VCR to start recording, or the timer setting will be cancelled.

When the timer settings overlap

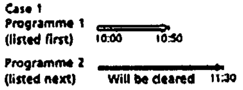
The VCR will not record overlapping programmes. If any of your timer settings overlap, change the settings.

Case 1: If you preset two programmes to start recording at the same time...
The programme listed first in the TIMER SET/CHECK menu has priority over the other programmes. The timer settings of lower priority programmes will be erased from the list when the first programme begins recording.

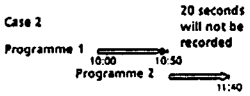
Case 2: If you preset programme 2 to start recording at the same time you preset programme 1 to finish recording...
The last 20 seconds of programme 1 will not be recorded because the VCR will enter recording pause for programme 2 before programme 1 is finished.

Case 3: If you preset programme 2 to start recording before programme 1 is finished recording...
Programme 2 will start recording before programme 1 has finished.

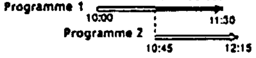
Case 1



Case 2



Case 3

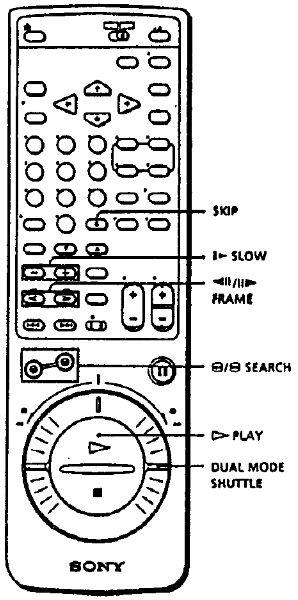


Note
The priority of the overlapping programmes may be different from the above cases if the PDC function is activated. See "Timer recording with PDC signals" on page 28.

Additional Operations

Playing/searching at various speeds

You can play back a tape at various speeds: high-speed, slow motion, frame by frame and so on. These options are also useful for searching for a specific point during playback. The sound is muted during these operations.



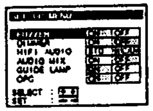
Tip
- Adjust the picture using the ▼/▲ TRACKING NORMAL/SLOW STILL ADJUST buttons if:
  - Streaks appear while playing in slow motion.
  - Bands appear on the top or bottom while pausing.
  - The picture shakes while pausing.

Note
- If you use these functions in the LP mode, noise may appear or there may be no colour.

Playback options	Operation	To resume normal playback
Playing at various speeds:	During playback, turn the DUAL MODE SHUTTLE ring right or left to:	Release the ring.
One-fifth the normal speed	1/5	
The normal speed	1	
Twice the normal speed	×2	
High speed	⊖ or ⊖	
Fast-forwarding/ Rewinding	During stop, turn the DUAL MODE SHUTTLE ring to ▸▸ FF or to ◂◂ REW and release.	Press ▷ PLAY.
Viewing the picture during fast-forward or rewind	During fast-forward, turn the DUAL MODE SHUTTLE ring to ▸▸ FF. During rewind, turn the ring to ◂◂ REW.	To return to the previous mode, release the ring.
Locking in a high-speed picture	During playback or pause, press ⊖ SEARCH or ⊖ SEARCH. To change direction, press ◂II FRAME (backward) or II▸FRAME (forward).	Press ▷ PLAY.
Locking in a slow-motion picture	During playback or pause, press I▸ SLOW –/+. You can increase the playback speed with the + button and decrease the speed with the – button. To change direction, press ◂II FRAME (backward) or II▸ FRAME (forward).	Press ▷ PLAY.
Playing frame by frame	During pause, press II▸ FRAME to advance the picture one frame or ◂II FRAME to reverse the picture one frame. Keep pressing the button to advance or reverse one frame every one second.	Press ▷ PLAY.
Playing in reverse	During playback, press ◂II FRAME.	Press ▷ PLAY.
Skipping a scene	During playback, press SKIP. Pressing once skips about 30 seconds.	The VCR automatically resumes normal playback.
Rewind and restart play	During stop, press ▷ PLAY on the VCR while holding the DUAL MODE SHUTTLE ring on the VCR at the ◂◂ REW position.	—

Looking at menu options

The SET UP MENU provides you with various options to set up and customise your VCR. See the table below for the available menu choices. Initial settings are indicated in bold letters.


HIFI AUDIO
AUDIO MIX
GUIDE LAMP
OPC
SELECT :
SET :

Tip
- See "How sound is recorded on a video tape" on page 21.

Menu choices

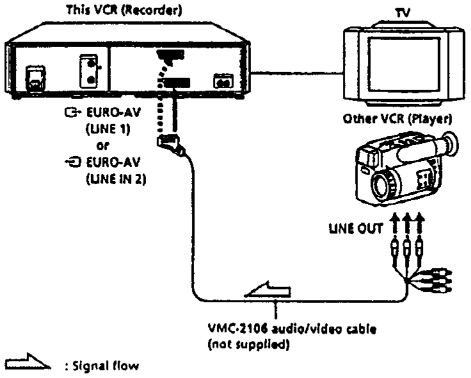
Menu option	Set this option to
BUZZER	• **ON** for output of beep sound when an illogical operation is made. • OFF to to deactivate it.
DIMMER	• ON to dim the VCR display. • **OFF** to brighten it.
HIFI AUDIO	• **NICAM** to record NICAM broadcasts on a hi-fi audio track. • STD to record standard sound on a hi-fi audio track. For details, see page 24.
AUDIO MIX	• ON to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button becomes inoperable. • **OFF** to select the sound using the AUDIO MONITOR button. For details, see page 21.
GUIDE LAMP	• **ON** to illuminate the DMS ring, REC button and TIMER indicator on the VCR. • OFF to turn them off.
OPC	• **ON** to activate the OPC (Optimum Picture Control). • OFF to deactivate it. For details, see page 34.

Editing with another VCR

This section shows you how to edit to or from another VCR or camcorder. You can make a copy of a tape using this VCR for recording or playback.

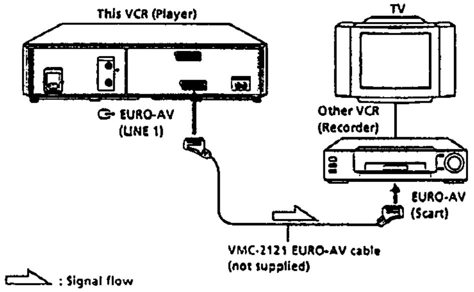
Tips
- Make sure you connect the plugs to jacks of the same colour.
- If the other VCR is a monaural type, leave the red plugs unconnected.

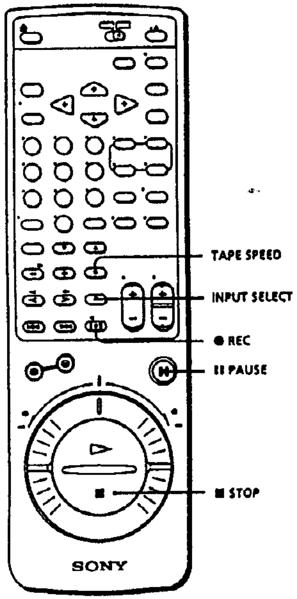
How to hook up to record on this VCR


This VCR (Recorder)
TV
Other VCR (Player)
⊡→ EURO-AV (LINE 1)
or
→⊡ EURO-AV (LINE IN 2)
LINE OUT
VMC-2106 audio/video cable (not supplied)
: Signal flow

How to hook up to record on another VCR

Tip
- If the other VCR doesn't have a EURO-AV (Scart) connector, use the VMC-2106 EURO-AV cable instead and connect the cable to the line in jacks of the other VCR.


This VCR (Player)
TV
Other VCR (Recorder)
⊡→ EURO-AV (LINE 1)
EURO-AV (Scart)
VMC-2121 EURO-AV cable (not supplied)
: Signal flow



Operation (when recording on this VCR)

Before you start...
- Press INPUT SELECT to display "L1" (or "L2") in the display window.
- Press TAPE SPEED to select the recording tape speed (SP/LP).
- On this VCR, set the EDIT switch on the VCR to ON.
  If the other VCR has a similar switch, set it to ON as well.

---

1. **Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.**
2. **Insert a tape into this (recording) VCR. Search for the point to start recording and press II PAUSE.**
3. **Press the ● REC button on this VCR and set it to recording pause.**
4. **To start editing, press the II PAUSE buttons on both VCRs to release the VCRs from pause.**
   For best results, press the pause button on the other VCR before pressing II PAUSE on this VCR.

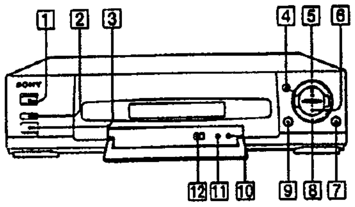
To stop editing
Press the ■ STOP buttons on both VCRs.

Tips
- To make your editing more precise, use the pause buttons on both VCRs.
- To cut out unwanted scenes while editing, press II PAUSE on this VCR when an unwanted scene begins. When it ends, press II PAUSE again to resume recording (Assemble Editing).

Index to parts and controls

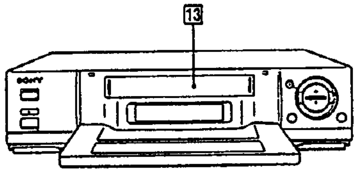
Refer to the pages indicated in ( ) for details.

Front panel, with cover closed



1 ON/STANDBY switch/indicator (8)
2 ≜ EJECT button (20)
3 Remote sensor (6)
4 II PAUSE button (20)
5 ▷ PLAY button (20)
6 ■ STOP button (20)
7 ● REC (recording) button/indicator (22)

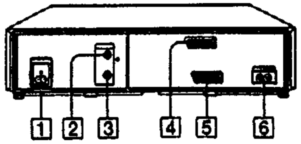
Front panel, with cover opened



8 DUAL MODE SHUTTLE ring (20, 33)
9 TIMER indicator (23, 27)
10 RF CHANNEL button (8)
11 EASY SET UP button (10)
12 EDIT switch (38)
13 Tape compartment

Index to parts and controls
(continued)

Rear panel



1 AC IN connector (7)

2 AERIAL OUT connector (7)

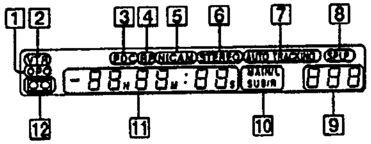
3 AERIAL IN connector (7)

4 -⊖ EURO-AV (LINE IN 2) connector (37)

5 ⊖- EURO-AV (LINE 1) connector (7, 37)

6 AUDIO OUT jacks (7)

Display window



1 OPC indicator (34)

2 VTR indicator (23)

3 PDC indicator (28)

4 RF indicator (8)

5 NICAM indicator (24)

6 STEREO indicator (21)

7 AUTO TRACKING indicator (34)

8 Tape speed indicators (22)

9 Line/Programme position indicator (38)

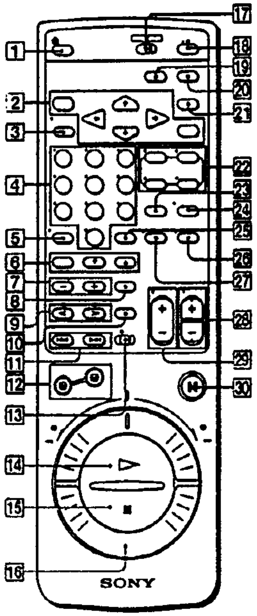
10 Bilingual sound indicators (21)

11 Linear time counter/Clock (21)

12 Tape indicator (22)

Index to parts and controls
(continued)

Remote commander



1 ≙ EJECT button (20)

2 Menu buttons (10)
  MENU button
  CURSOR ↑/↓/←/→ buttons
  EXECUTE button

3 AUDIO MONITOR button (21)

4 Number buttons (22, 29)

5 -/-- (ten's digit) button (22)

6 TRACKING buttons (34)
▼/▲ NORMAL/SLOW STILL ADJUST buttons
AUTO/MANUAL button

7 ▮► SLOW -/+ buttons (33)

8 TAPE SPEED button (22)

9 ◄II/II► FRAME </> buttons (33)

10 INPUT SELECT button (38)

11 ⏮/⏭ INDEX SEARCH buttons (35)

12 ⊖/⊖ SEARCH buttons (33)

13 ● REC button (22)

14 ⊳ PLAY button (20)

15 ■ STOP button (20)

16 DUAL MODE SHUTTLE ring (20, 33)

17 TV/VTR remote control switch (6)

18 ⏻ (on/standby) button (10)

19 TIMER CLEAR button (31)

20 TV/VTR button (23)

21 PDC button (28)

22 VIDEO Plus+ buttons (29)(*for VCR)*
FASTEXT buttons *(for TV)*
  VIDEO Plus+ button
  ONCE button
  DAILY button
  WEEKLY button

23 QUICK TIMER button (23)

24 DISPLAY button (21)

25 SKIP button (33)

26 COUNTER RESET button *(for VCR)* (21)
▢ (TV mode select) button *(for TV)*

27 ⊜ (Teletext) button *(for TV only)*

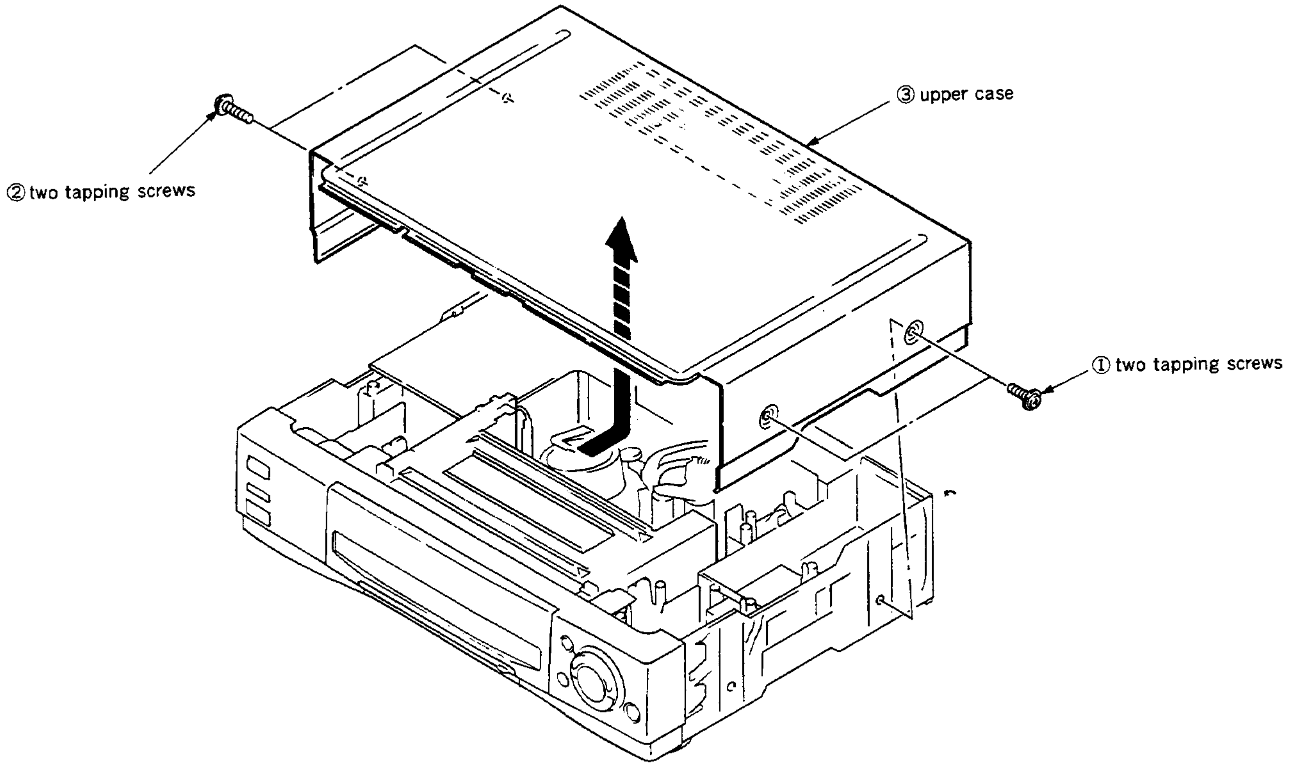
28 PROG (programme) +/- button
▲/▼ (Teletext page access) button *(for TV only)*

29 VOL (volume) +/- button *(for TV only)*

30 II PAUSE button (20)

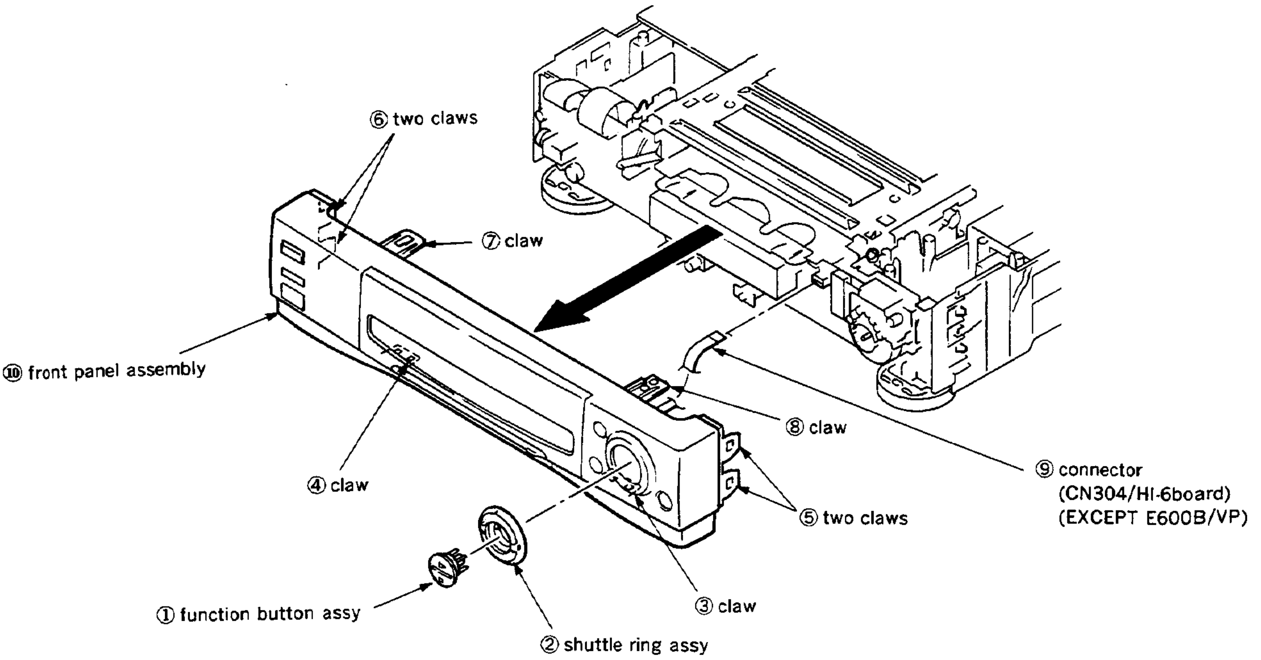
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF UPPER CASE



③ upper case
② two tapping screws
① two tapping screws

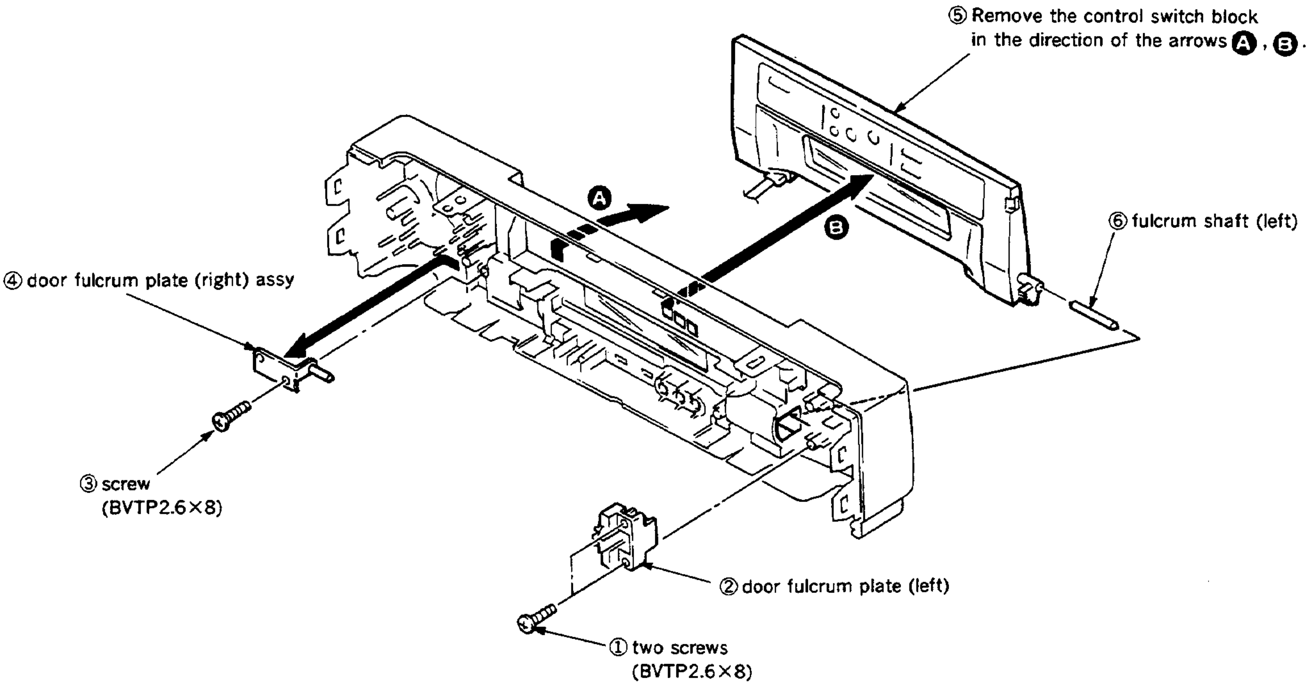
2-2. REMOVAL OF FRONT PANEL ASSEMBLY



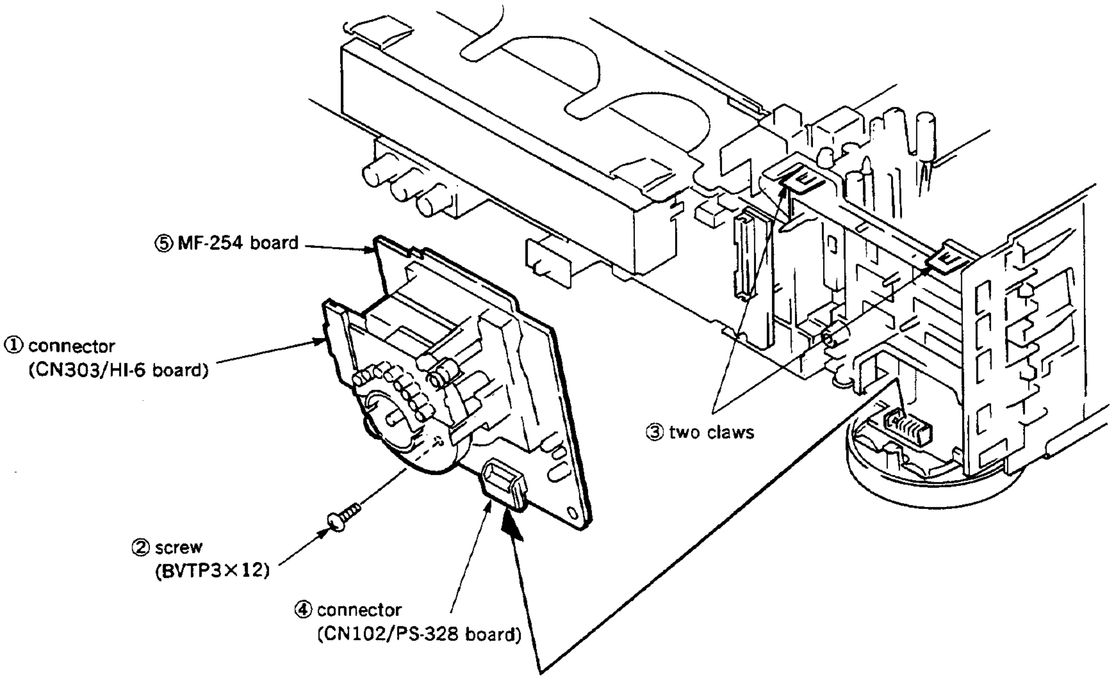
⑥ two claws
⑦ claw
⑩ front panel assembly
⑧ claw
⑨ connector
(CN304/HI-6board)
(EXCEPT E600B/VP)
④ claw
⑤ two claws
① function button assy
③ claw
② shuttle ring assy

2-3. REMOVAL OF CONTROL SWITCH BLOCK

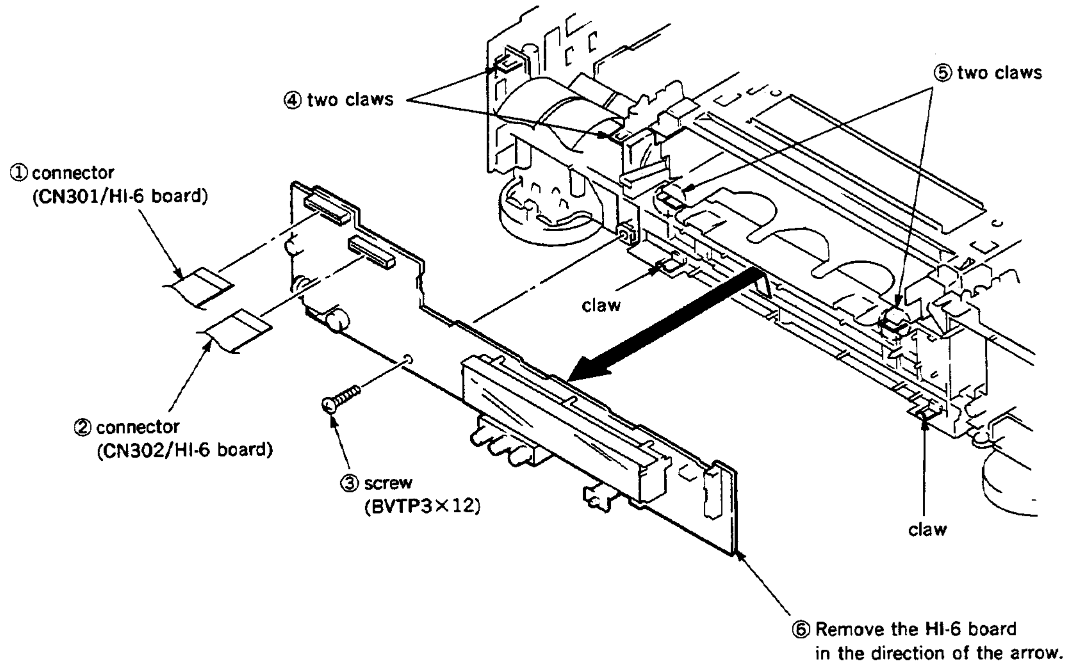
(EXCEPT E600)


⑤ Remove the control switch block
in the direction of the arrows A, B.
A
B
⑥ fulcrum shaft (left)
④ door fulcrum plate (right) assy
③ screw
(BVTP2.6×8)
② door fulcrum plate (left)
① two screws
(BVTP2.6×8)

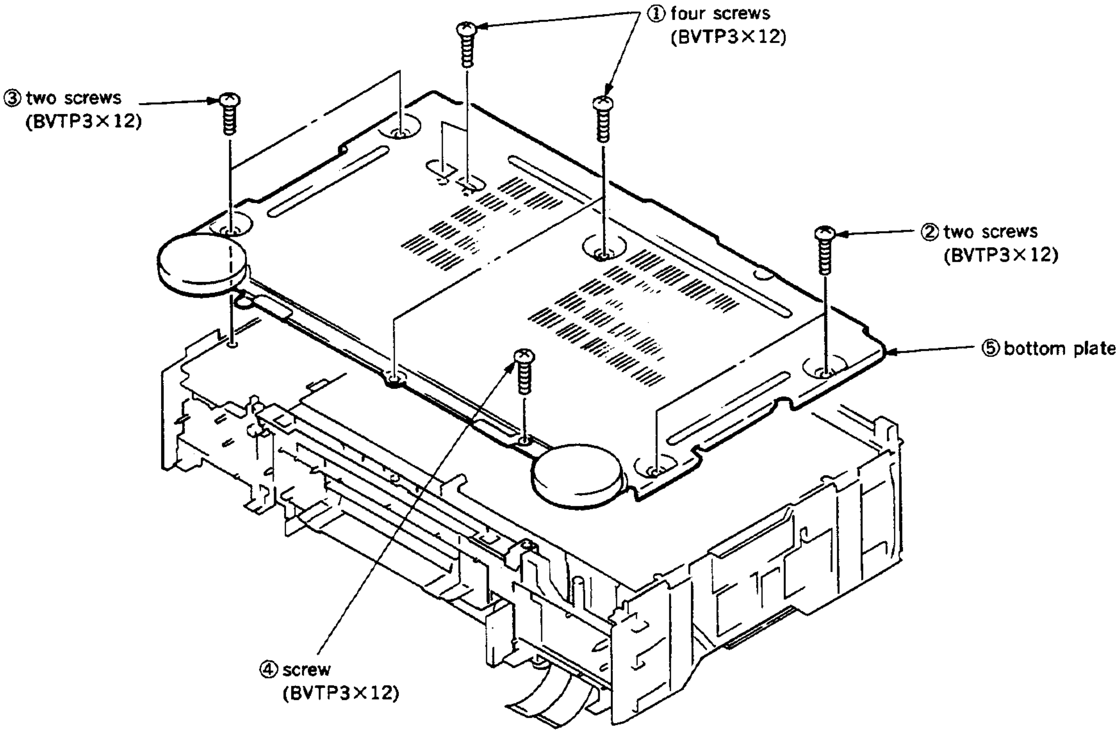
2-4. REMOVAL OF MF-254 BOARD


⑤ MF-254 board
① connector
(CN303/HI-6 board)
③ two claws
② screw
(BVTP3×12)
④ connector
(CN102/PS-328 board)

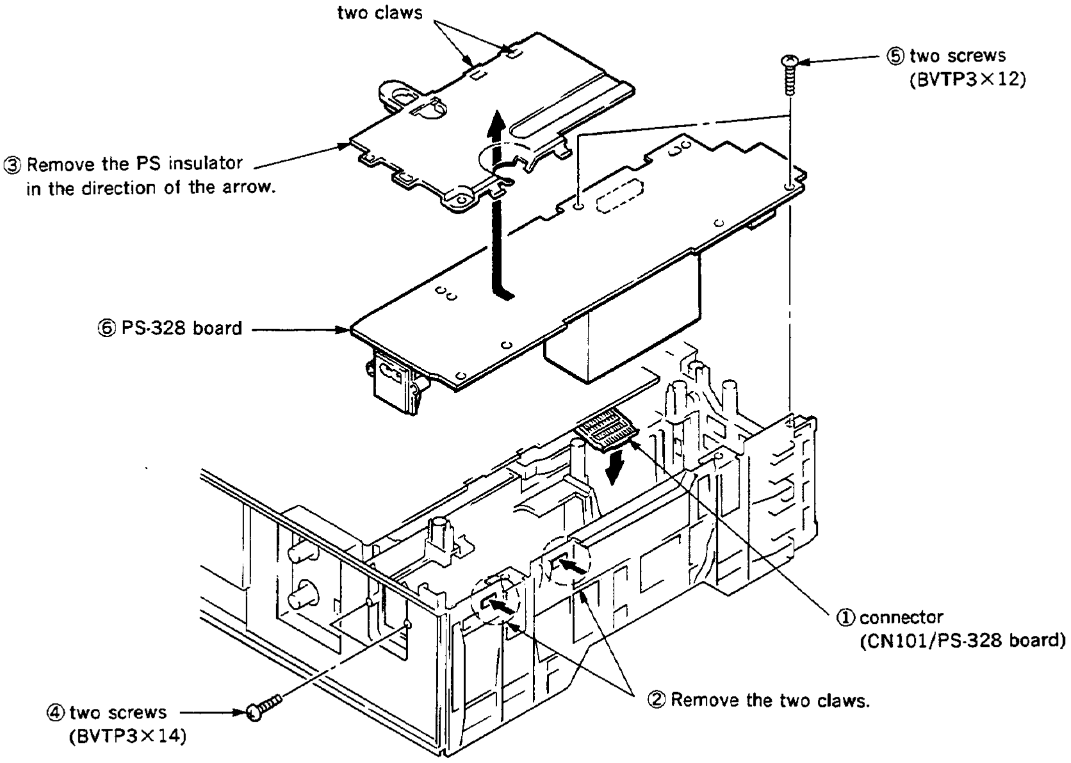
2-5. REMOVAL OF HI-6 BOARD


④ two claws
⑤ two claws
① connector
(CN301/HI-6 board)
claw
② connector
(CN302/HI-6 board)
③ screw
(BVTP3×12)
claw
⑥ Remove the HI-6 board
in the direction of the arrow.

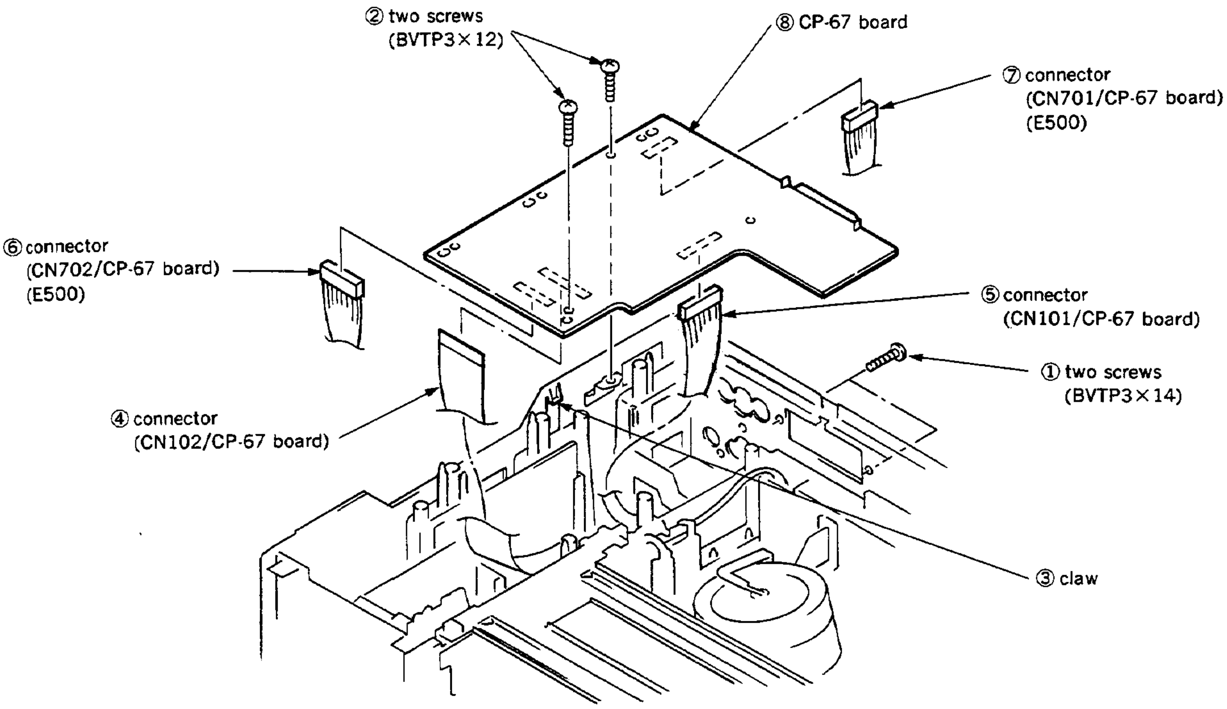
2-6. REMOVAL OF BOTTOM PLATE


① four screws
(BVTP3×12)
③ two screws
(BVTP3×12)
② two screws
(BVTP3×12)
⑤ bottom plate
④ screw
(BVTP3×12)

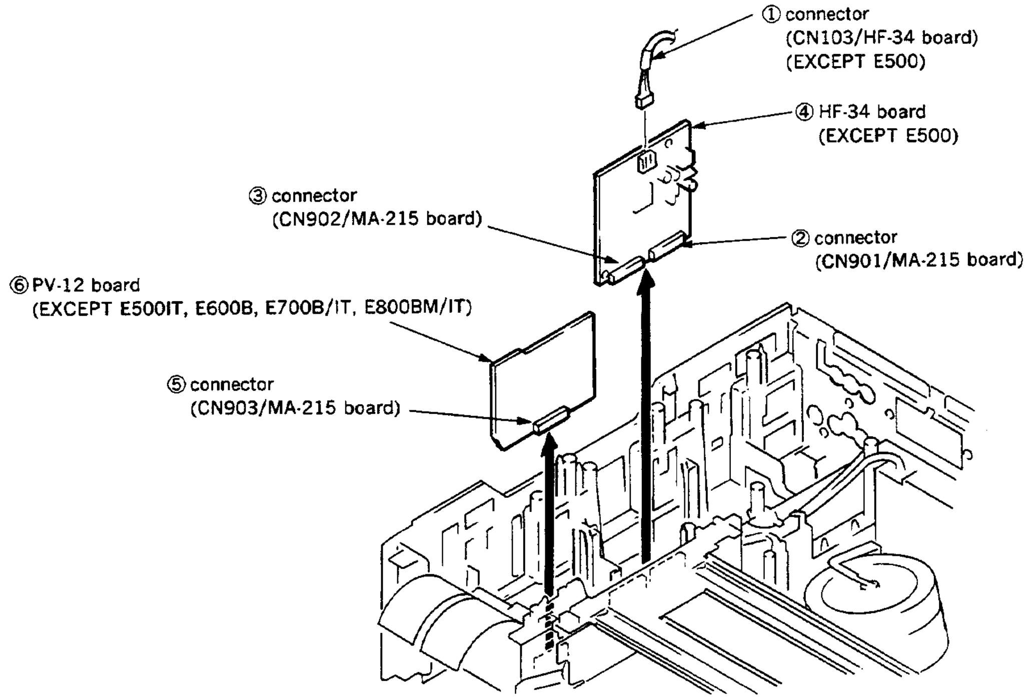
2-7. REMOVAL OF PS-328 BOARD


two claws
⑤ two screws
(BVTP3×12)
③ Remove the PS insulator
in the direction of the arrow.
⑥ PS-328 board
① connector
(CN101/PS-328 board)
② Remove the two claws.
④ two screws
(BVTP3×14)

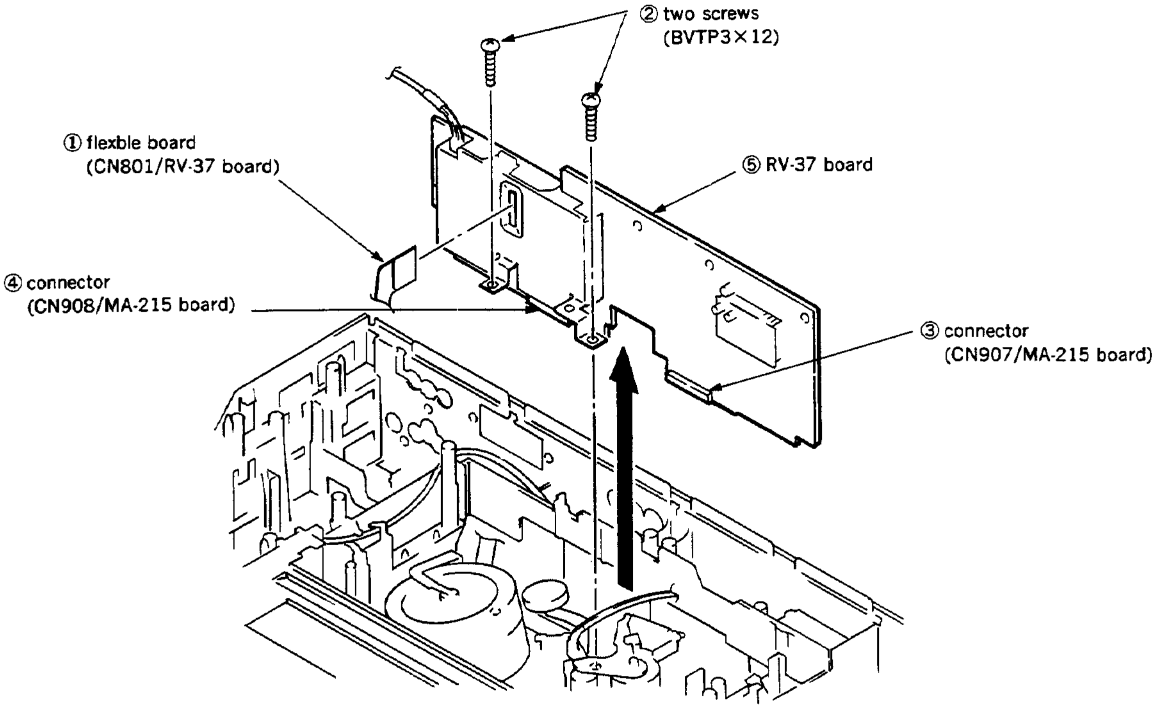
2-8. REMOVAL OF CP-67 BOARD (E500, E600B, E700B/EX/UX, E800BM/NP/VC)


② two screws
(BVTP3×12)
⑧ CP-67 board
⑦ connector
(CN701/CP-67 board)
(E500)
⑥ connector
(CN702/CP-67 board)
(E500)
⑤ connector
(CN101/CP-67 board)
① two screws
(BVTP3×14)
④ connector
(CN102/CP-67 board)
③ claw

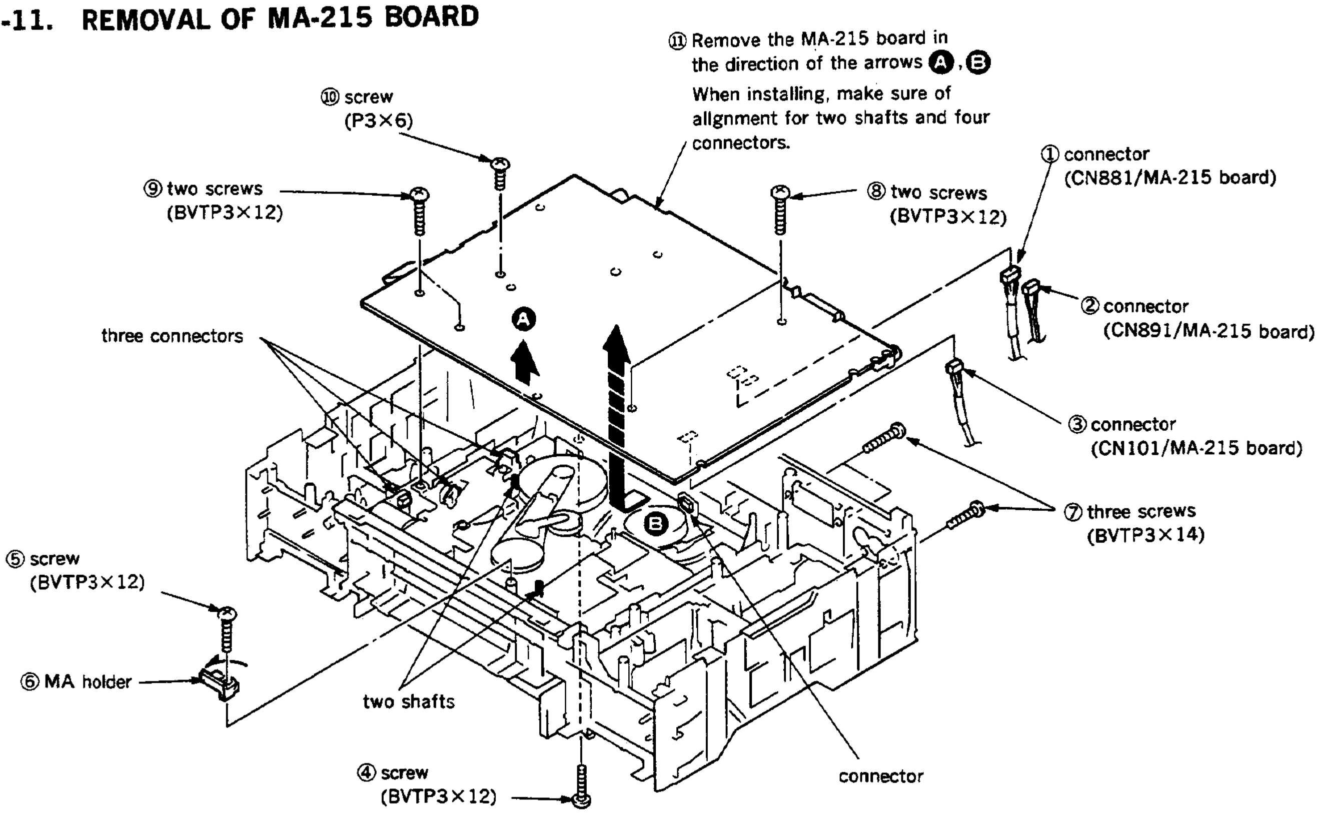
2-9. REMOVAL OF HF-34 BOARD AND PV-12 BOARD


① connector
(CN103/HF-34 board)
(EXCEPT E500)
④ HF-34 board
(EXCEPT E500)
③ connector
(CN902/MA-215 board)
② connector
(CN901/MA-215 board)
⑥ PV-12 board
(EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)
⑤ connector
(CN903/MA-215 board)

2-10. REMOVAL OF RV-37 BOARD

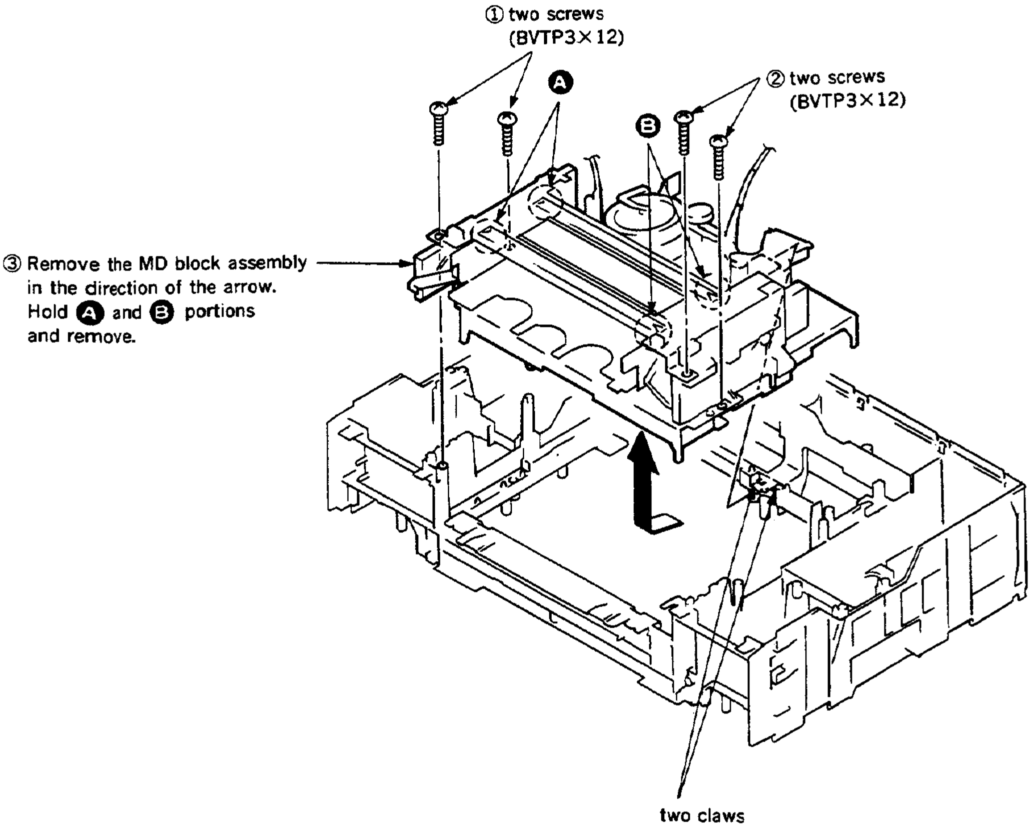

② two screws
(BVTP3×12)
① flexble board
(CN801/RV-37 board)
⑤ RV-37 board
④ connector
(CN908/MA-215 board)
③ connector
(CN907/MA-215 board)

2-11. REMOVAL OF MA-215 BOARD


⑩ screw
(P3×6)
⑨ two screws
(BVTP3×12)
⑧ two screws
(BVTP3×12)
① connector
(CN881/MA-215 board)
② connector
(CN891/MA-215 board)
③ connector
(CN101/MA-215 board)
⑦ three screws
(BVTP3×14)
three connectors
Ⓐ
Ⓑ
⑤ screw
(BVTP3×12)
⑥ MA holder
two shafts
④ screw
(BVTP3×12)
connector

⑪ Remove the MA-215 board in the direction of the arrows Ⓐ, Ⓑ. When installing, make sure of alignment for two shafts and four connectors.

2-12. REMOVAL OF MD BLOCK ASSEMBLY


① two screws
(BVTP3×12)
② two screws
(BVTP3×12)
Ⓐ
Ⓑ
two claws

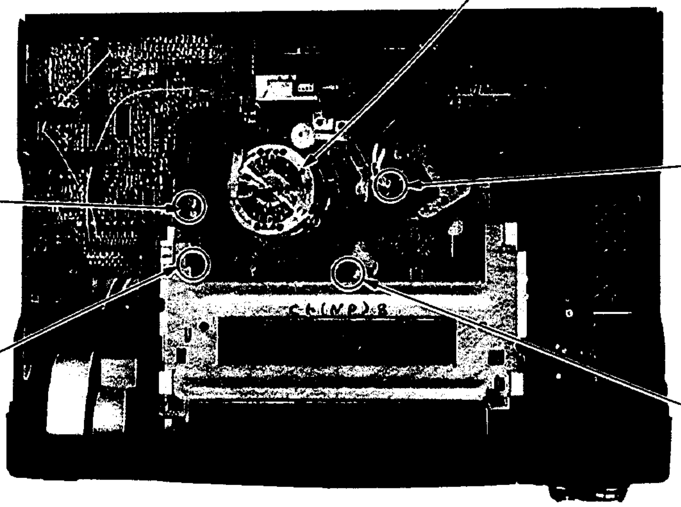
③ Remove the MD block assembly in the direction of the arrow. Hold Ⓐ and Ⓑ portions and remove.

2-13. INTERNAL VIEWS

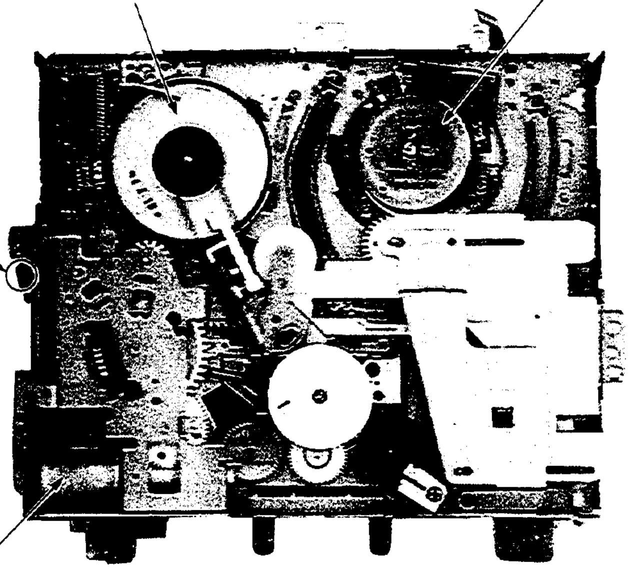
—Upper side—

M901

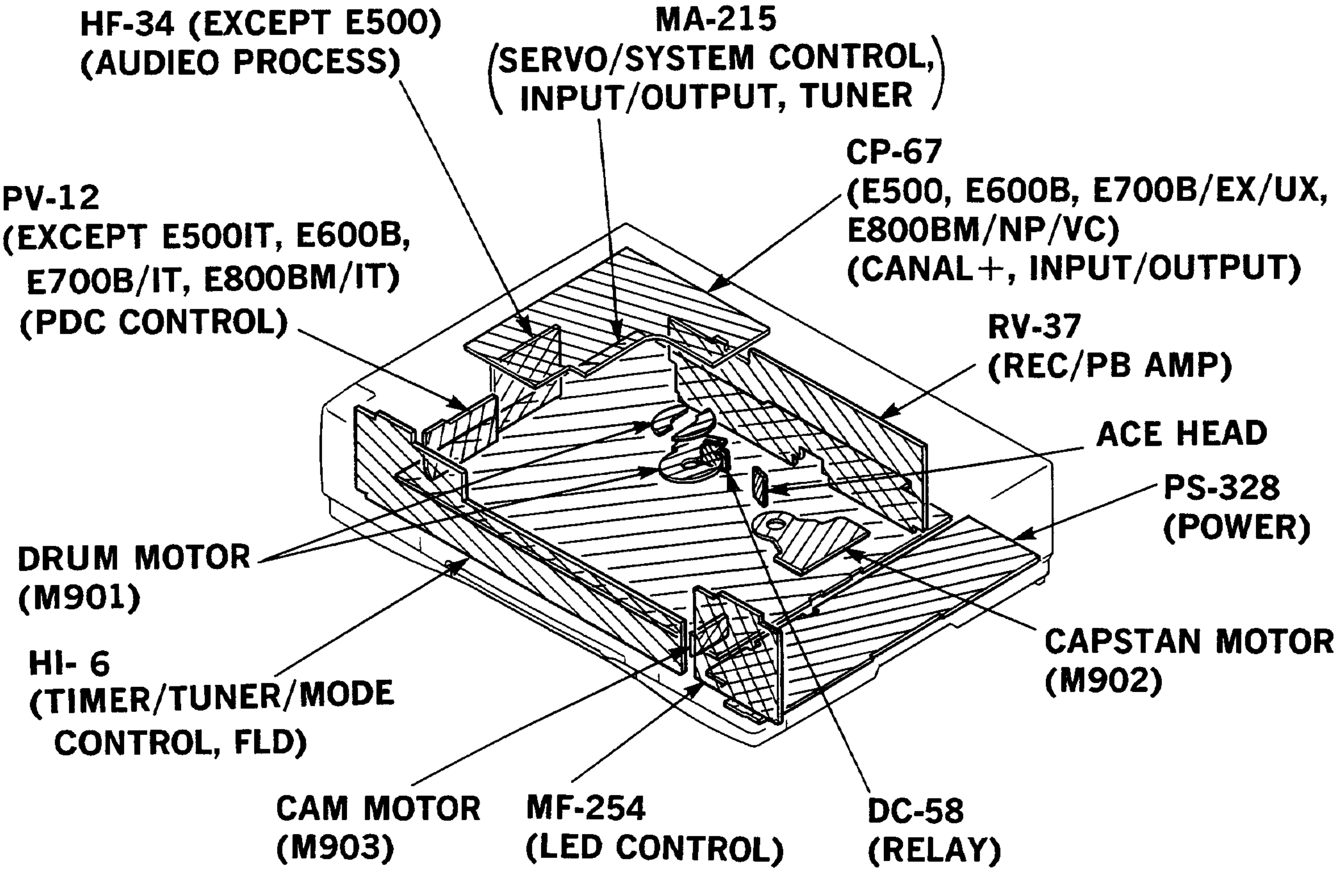
Drum assy	8-848-618-12 (DZH-54A-R)	(E500AP/CP/IT/UX/VP)
	8-848-619-12 (DZH-66A-R)	(EXCEPT E500AP/CP/IT/UX/VP)
Rotary upper drum assy	8-848-621-02 (DZR-54-R)	(E500AP/CP/IT/UX/VP)
	8-848-622-02 (DZR-66-R)	(EXCEPT E500AP/CP/IT/UX/VP)


FE head
1-500-144-11
ACE head
A-6736-103-A
Q002
Tape end sensor
8-729-025-92
D001
Tape top/end LED
8-719-048-26

—Lower side—


M902
Capstan motor
1-698-409-11
M901
Drum motor
Q001
Tape top sensor
8-729-025-92
M903
Cam motor
X-3943-883-1

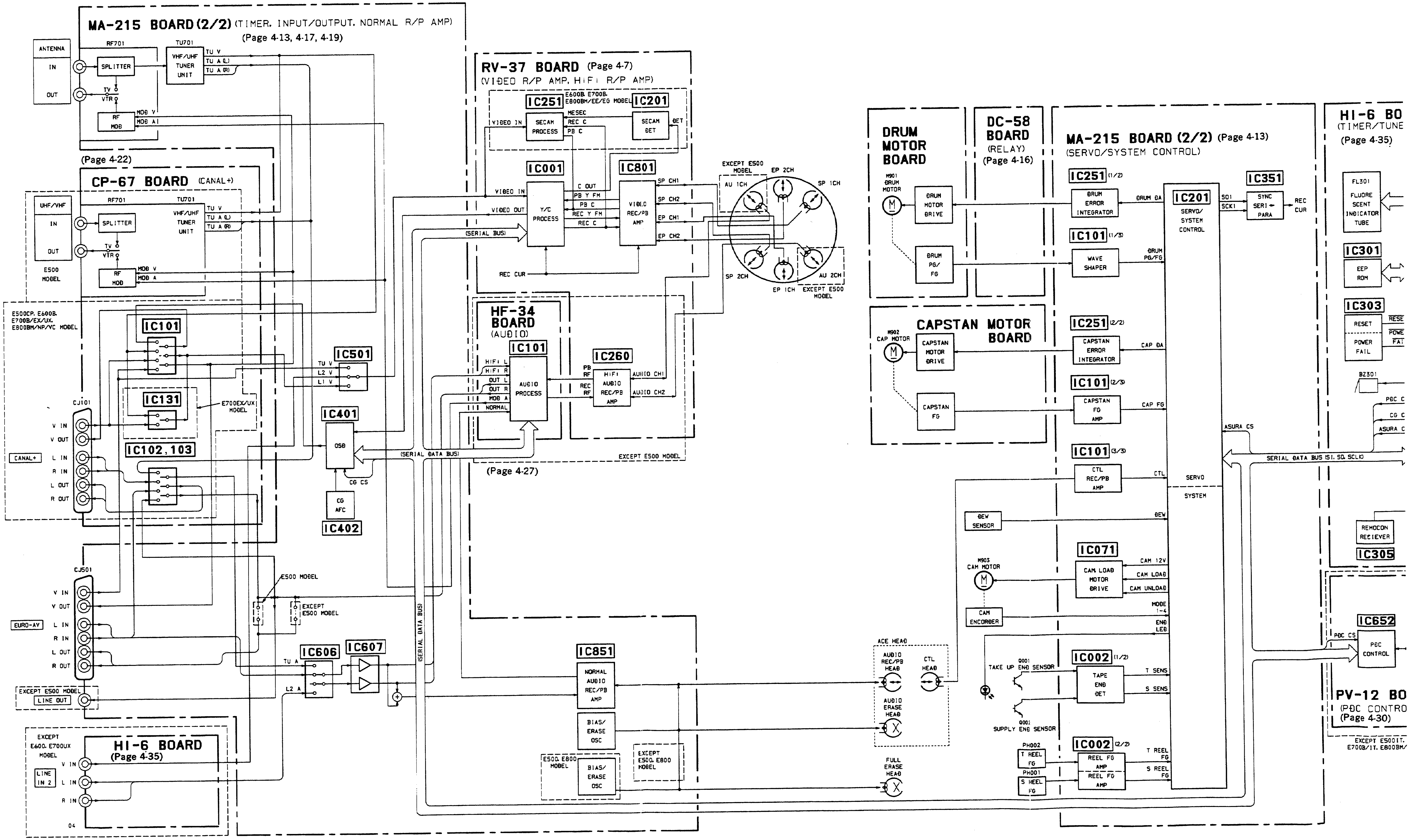
2-14. CIRCUIT BOARDS LOCATION

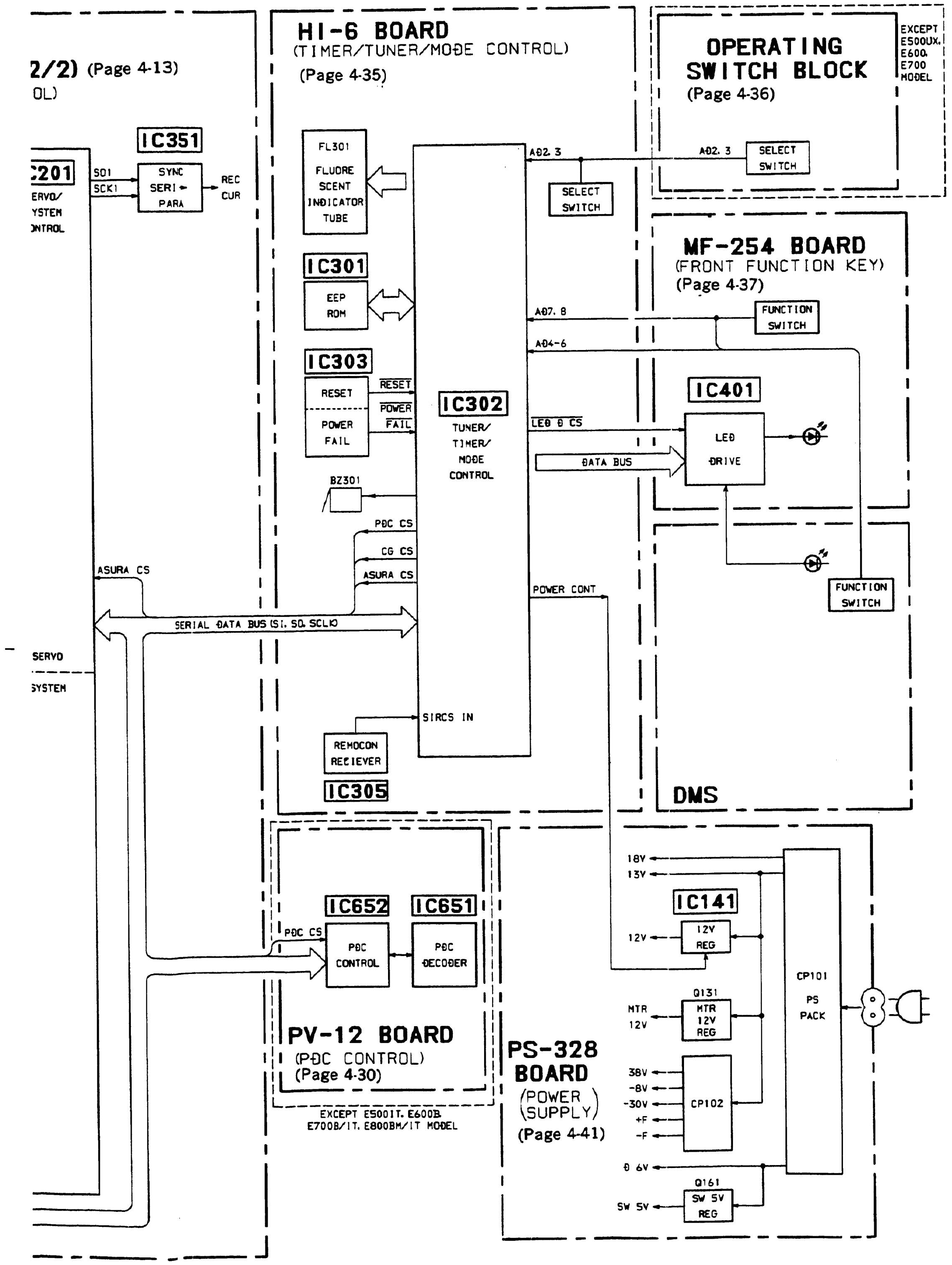

HF-34 (EXCEPT E500)
(AUDIEO PROCESS)
MA-215
(SERVO/SYSTEM CONTROL, INPUT/OUTPUT, TUNER)
CP-67
(E500, E600B, E700B/EX/UX, E800BM/NP/VC)
(CANAL+, INPUT/OUTPUT)
PV-12
(EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)
(PDC CONTROL)
RV-37
(REC/PB AMP)
ACE HEAD
PS-328
(POWER)
DRUM MOTOR
(M901)
CAPSTAN MOTOR
(M902)
HI- 6
(TIMER/TUNER/MODE CONTROL, FLD)
CAM MOTOR
(M903)
MF-254
(LED CONTROL)
DC-58
(RELAY)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

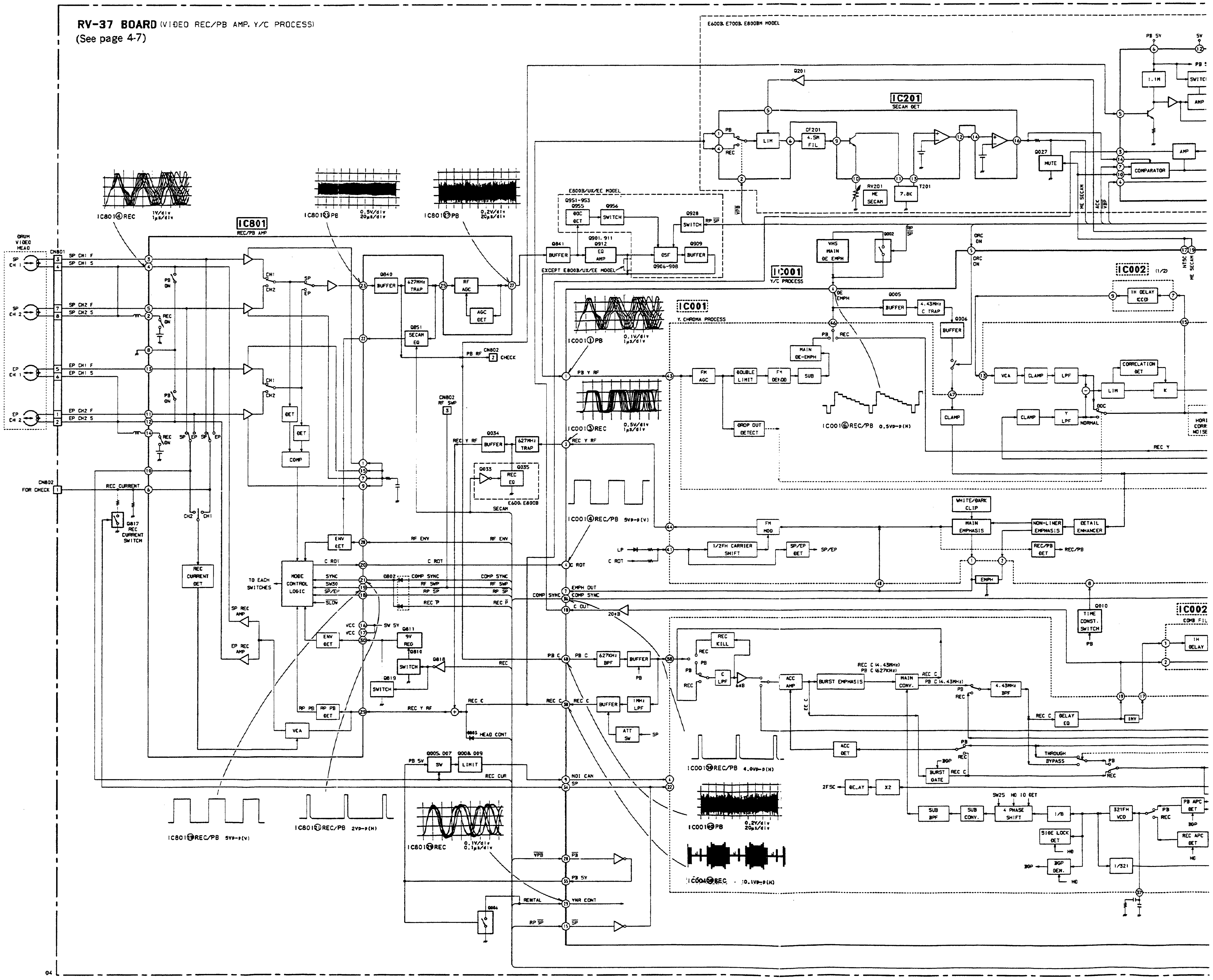
• The boards which signals only pass through may be omitted.

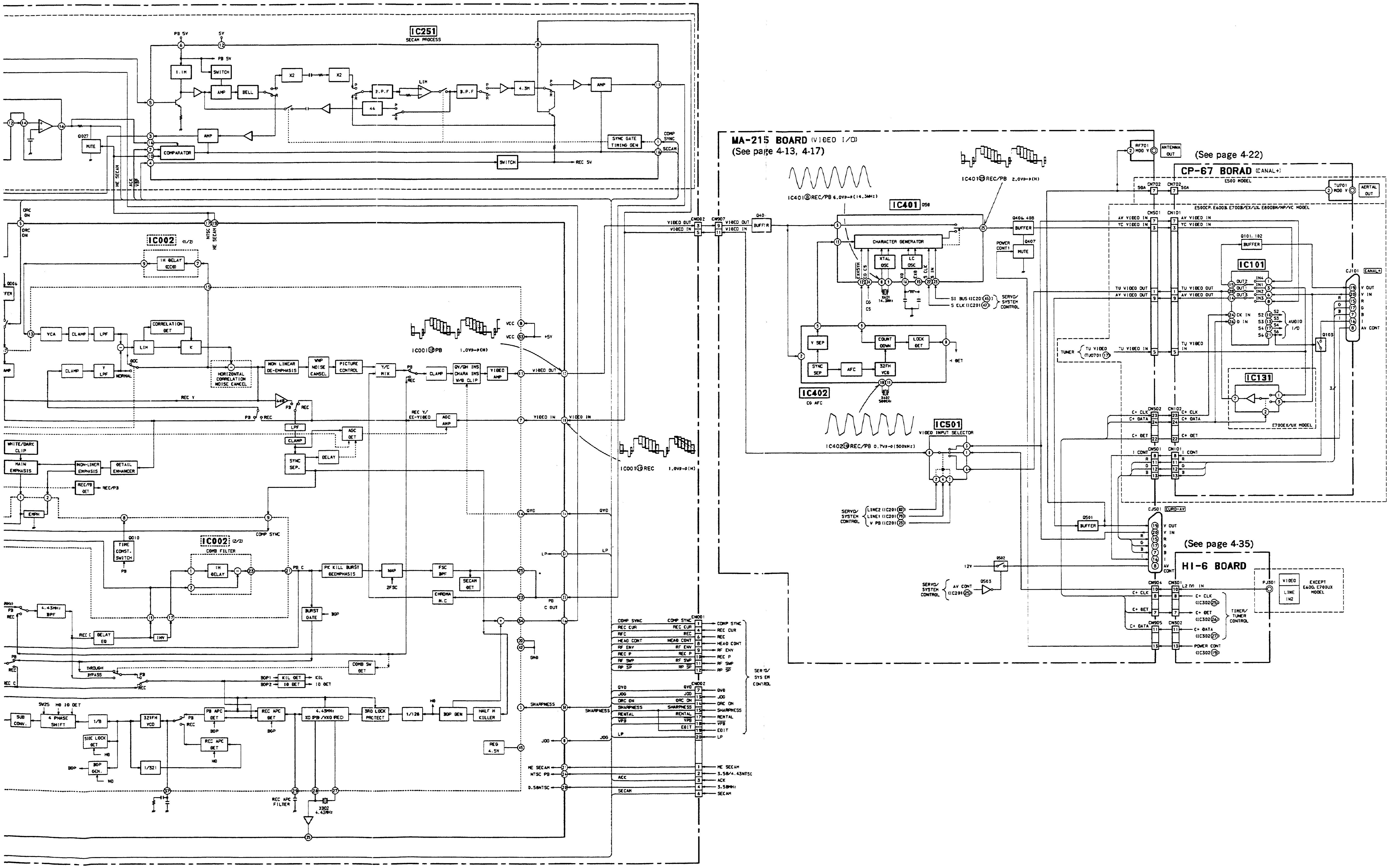

MA-215 BOARD (2/2) (TIMER, INPUT/OUTPUT, NORMAL R/P AMP)
(Page 4-13, 4-17, 4-19)
ANTENNA
IN
OUT
RF701
SPLITTER
TU701
VHF/UHF TUNER UNIT
TU V
TU A (L)
TU A (R)
TV
VTR
RF MOD
MOD V
MOD A
(Page 4-22)
CP-67 BOARD (CANAL+)
UHF/VHF
E500 MODEL
E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
IC101
IC131
IC102,103
E700EX/UX MODEL
CJ101
V IN
V OUT
CANAL+
L IN
R IN
L OUT
R OUT
IC501
L2 V
L1 V
IC401
OSD
CG AFC
IC402
CG CS
CJ501
EURO-AV
E500 MODEL
EXCEPT E500 MODEL
IC606
IC607
TU A
L2 A
EXCEPT E500 MODEL
LINE OUT
EXCEPT E600, E700UX MODEL
HI-6 BOARD
(Page 4-35)
LINE IN 2
RV-37 BOARD (Page 4-7)
(VIDEO R/P AMP, HiFi R/P AMP)
IC251
E600B, E700B, E800BM/EE/EG MODEL
IC201
MESEC
VIDEO IN
SECAM PROCESS
REC C
PB C
SECAM DET
DET
IC001
IC801
C OUT
PB Y FM
Y/C PROCESS
REC Y FM
VIDEO OUT
(SERIAL BUS)
VIDEO REC/PB AMP
SP CH1
SP CH2
EP CH1
EP CH2
REC CUR
HF-34 BOARD
(AUDIO)
HiFi L
HiFi R
OUT L
OUT R
MOD A
NORMAL
AUDIO PROCESS
IC260
PB RF
REC RF
HiFi AUDIO REC/PB AMP
AUDIO CH1
AUDIO CH2
(SERIAL DATA BUS)
EXCEPT E500 MODEL
(Page 4-27)
EXCEPT E500 MODEL
AU 1CH
EP 2CH
SP 1CH
SP 2CH
EP 1CH
AU 2CH
IC851
NORMAL AUDIO REC/PB AMP
BIAS/ERASE OSC
E500, E800 MODEL
EXCEPT E500, E800 MODEL
ACE HEAD
AUDIO REC/PB HEAD
CTL HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
DRUM MOTOR BOARD
M901 DRUM MOTOR
DRUM MOTOR DRIVE
DRUM PG/FG
DC-58 BOARD
(RELAY)
(Page 4-16)
CAPSTAN MOTOR BOARD
M902 CAP MOTOR
CAPSTAN MOTOR DRIVE
CAPSTAN FG
MA-215 BOARD (2/2) (Page 4-13)
(SERVO/SYSTEM CONTROL)
IC251 (1/2)
DRUM ERROR INTEGRATOR
DRUM DA
IC101 (1/3)
WAVE SHAPER
DRUM PG/FG
IC251 (2/2)
CAPSTAN ERROR INTEGRATOR
CAP DA
IC101 (2/3)
CAPSTAN FG AMP
CAP FG
IC101 (3/3)
CTL REC/PB AMP
CTL
IC201
SERVO/SYSTEM CONTROL
SERVO
SYSTEM
SO1
SCK1
IC351
SYNC SERI PARA
REC CUR
ASURA CS
SERIAL DATA BUS (SI, SO, SCLK)
DEW SENSOR
DEW
M903 CAM MOTOR
IC071
CAM LOAD MOTOR DRIVE
CAM 12V
CAM LOAD
CAM UNLOAD
CAM ENCORDER
MODE 1-4
END LED
Q001 TAKE UP END SENSOR
Q002 SUPPLY END SENSOR
IC002 (1/2)
TAPE END DET
T SENS
S SENS
PH002 T REEL FG
PH001 S REEL FG
IC002 (2/2)
REEL FG AMP
T REEL FG
S REEL FG
HI-6 BO
(TIMER/TUNE
(Page 4-35)
FL301
FLUORESCENT INDICATOR TUBE
IC301
EEP ROM
IC303
RESET
POWER FAIL
BZ301
PDC C
CG C
ASURA C
REMOCON RECIEVER
IC305
IC652
PDC CS
PDC CONTROL
PV-12 BO
(PDC CONTRO
(Page 4-30)
EXCEPT E500IT, E700B/IT, E800BM/


2/2) (Page 4-13)
OL)
IC351
201
ERVO/
YSTEM
NTROL
SO1
SCK1
SYNC
SERI → PARA
REC
CUR
ASURA CS
SERVO
SYSTEM
HI-6 BOARD
(TIMER/TUNER/MODE CONTROL)
(Page 4-35)
FL301
FLUORESCENT INDICATOR TUBE
IC301
EEP ROM
IC303
RESET
POWER FAIL
RESET
POWER FAIL
IC302
TUNER/ TIMER/ MODE CONTROL
BZ301
PDC CS
CG CS
ASURA CS
SERIAL DATA BUS (SI. SO. SCLK)
SIRCS IN
REMOCON RECIEVER
IC305
A02. 3
SELECT SWITCH
A07. 8
A04-6
LED 0 CS
DATA BUS
POWER CONT
OPERATING SWITCH BLOCK
(Page 4-36)
EXCEPT E500UX. E600. E700 MODEL
A02. 3
SELECT SWITCH
MF-254 BOARD
(FRONT FUNCTION KEY)
(Page 4-37)
FUNCTION SWITCH
IC401
LED DRIVE
FUNCTION SWITCH
DMS
IC652
IC651
PDC CS
PDC CONTROL
PDC DECODER
PV-12 BOARD
(PDC CONTROL)
(Page 4-30)
EXCEPT E500IT. E600B. E700B/IT. E800BM/IT MODEL
PS-328 BOARD
(POWER SUPPLY)
(Page 4-41)
18V
13V
IC141
12V
12V REG
Q131
MTR 12V
MTR 12V REG
38V
-8V
-30V
+F
-F
CP102
0 6V
Q161
SW 5V
SW 5V REG
CP101
PS PACK

3-2. VIDEO BLOCK DIAGRAM

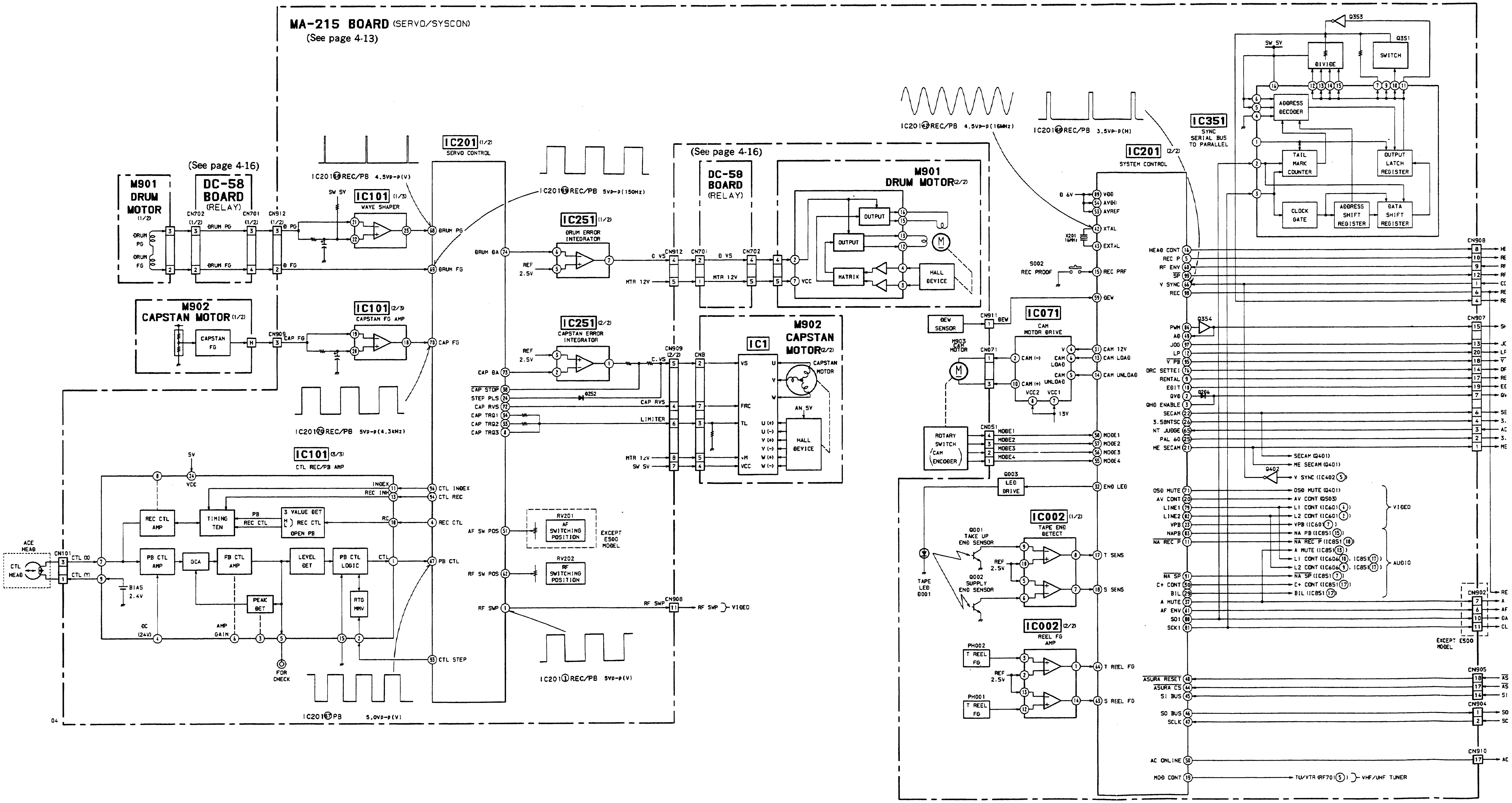
- The boards which signals only pass through may be omitted.


RV-37 BOARD (VIDEO REC/PB AMP, Y/C PROCESS)
(See page 4-7)
IC801
REC/PB AMP
IC201
SECAM DET
IC001
Y/C PROCESS
IC001
Y, CHROMA PROCESS
IC002
1H DELAY CCD
IC002
COMB FIL
DRUM VIDEO HEAD
SP CH1
SP CH2
EP CH1
EP CH2
CN801
CN802 FOR CHECK
SP CH1 F
SP CH1 S
SP CH2 F
SP CH2 S
EP CH1 F
EP CH1 S
EP CH2 F
EP CH2 S
REC CURRENT
REC CURRENT SWITCH
REC CURRENT DET
MODE CONTROL LOGIC
TO EACH SWITCHES
ENV DET
COMP
DET
BUFFER
627KHz TRAP
RF AGC
AGC DET
SECAM EQ
RF ENV
C ROT
SYNC
SW30
SP/EP
SLOW
COMP SYNC
RF SWP
RP SP
REC P
VCC
5V
9V REG
SWITCH
VCA
RP PB DET
REC Y RF
REC C
HEAD CONT
PB 5V
SW
LIMIT
REC CUR
NOI CAN
SP
RENTAL
YNR CONT
PB 5Y
SP REC AMP
EP REC AMP
E600B, E700B, E800BM MODEL
E800B/UX/EE MODEL
EXCEPT E800B/UX/EE MODEL
DOC DET
SWITCH
EQ AMP
OSF
BUFFER
VHS MAIN DE EMPH
DE EMPH
4.43MHz C TRAP
FM AGC
DOUBLE LIMIT
FM DEMOD
SUB
MAIN DE-EMPH
DROP OUT DETECT
FM MOD
1/2FH CARRIER SHIFT
SP/EP DET
WHITE/DARK CLIP
MAIN EMPHASIS
NON-LINER EMPHASIS
DETAIL ENHANCER
REC/PB DET
EMPH
VCA
CLAMP
LPF
CORRELATION DET
LIM
Y LPF
NORMAL
REC Y
TIME CONST. SWITCH
1H DELAY
PB C
627KHz BPF
BUFFER
1MHz LPF
ATT SW
REC KILL
C LPF
ACC AMP
BURST EMPHASIS
MAIN CONV.
4.43MHz BPF
DELAY EQ
INV
ACC DET
THROUGH BYPASS
BURST GATE
2FSC
DELAY
X2
SUB BPF
SUB CONV.
4 PHASE SHIFT
1/8
321FH VCO
SIDE LOCK DET
BGP GEN.
1/321
PB APC DET
REC APC DET
LIM
CF201 4.5M FIL
RV201 ME SECAM
T201
7.8K
Q027 MUTE
COMPARATOR
AMP
SWITCH
PB 5V
IC801④REC 1V/div 1μs/div
IC801⑬PB 0.5V/div 20μs/div
IC801㉗PB 0.2V/div 20μs/div
IC001①PB 0.1V/div 1μs/div
IC001③REC 0.5V/div 1μs/div
IC001⑥REC/PB 0.5Vp-p(H)
IC001④REC/PB 5Vp-p(V)
IC001㊿REC/PB 4.0Vp-p(H)
IC001㊾PB 0.2V/div 20μs/div
IC001㊹REC 0.1Vp-p(H)
IC801⑪REC/PB 5Vp-p(V)
IC801⑮REC/PB 2Vp-p(H)
IC801⑭REC 0.1V/div 0.1μs/div


IC251
SECAM PROCESS
PB 5V
5V
1.1H
SWITCH
AMP
BELL
X2
X2
B.P.F
LIM
B.P.F
4.3M
AMP
44
AMP
COMPARATOR
SWITCH
REC 5V
SYNC GATE TIMING GEN
COMP SYNC
SECAM
Q027
MUTE
ME SECAM
ACC
VBP
DRC ON
IC002 (1/2)
1H DELAY (CCD)
NTSC
ME SECAM
YCA
CLAMP
LPF
CORRELATION DET
LIM
K
CLAMP
Y LPF
NORMAL
DOC
HORIZONTAL CORRELATION NOISE CANCEL
NON LINEAR DE-EMPHASIS
VHP NOISE CANSEL
PICTURE CONTROL
Y/C MIX
CLAMP
OV/OH INS CHARA INS W/B CLIP
VIDEO AMP
VIDEO OUT
VCC
+5V
IC001 PB 1.0Vp-p(H)
REC Y
PB
REC
REC Y/ EE-VIDEO
AGC AMP
VIDEO IN
LPF
CLAMP
AGC DET
SYNC SEP.
DELAY
IC001 REC 1.0Vp-p(H)
WHITE/DARK CLIP
MAIN EMPHASIS
NON-LINER EMPHASIS
DETAIL ENHANCER
REC/PB DET
REC/PB
EMPH
Q010
TIME CONST. SWITCH
COMP SYNC
GYO
LP
IC002 (2/2)
COMB FILTER
1H DELAY
PB C
PK KILL BURST DEEMPHASIS
MAP
2FSC
FSC BPF
SECAM DET
CHROMA N.C
PB C OUT
4.43MHz BPF
REC C
DELAY EQ
INV
BURST GATE
BGP
THROUGH
BYPASS
COMB SW DET
BGP1
KIL DET
KIL
BGP2
ID DET
ID DET
5V25
HD
ID DET
SUB CONV.
4 PHASE SHIFT
1/8
321FH VCO
PB APC DET
REC APC DET
4.43MHz XO (PB)/VXO (REC)
3RD LOCK PRETECT
1/128
BGP GEN
HALF H KILLER
SIDE LOCK DET
BGP GEN.
1/321
REC APC DET
REC APC FILTER
X002 4.43MHz
REG 4.5V
SHARPNESS
JOG
ME SECAM
NTSC PB
0.58NTSC
GND
CN002
CN001
COMP SYNC
REC CUR
RFC
HEAD CONT
RF ENV
REC P
RF SWP
RP SP
GYO
JOG
DRC ON
SHARPNESS
RENTAL
VPB
EDIT
LP
ACC
SECAM
3.58/4.43NTSC
3.58MHz
SERVO/SYSTEM CONTROL
MA-215 BOARD (VIDEO I/O)
(See page 4-13, 4-17)
CN907
VIDEO OUT
VIDEO IN
Q40
BUFFER
IC401 REC/PB 6.0Vp-p (14.3MHz)
IC401 REC/PB 2.0Vp-p(H)
IC401 OSD
CHARACTER GENERATOR
XTAL OSC
LC OSC
X401 14.3MHz
SI BUS (IC201)
S CLK (IC201)
SERVO/SYSTEM CONTROL
V SEP
COUNT DOWN
LOCK DET
H DET
SYNC SEP
AFC
32FH VCO
X402 500KHz
IC402
CG AFC
IC402 REC/PB 0.7Vp-p(500KHz)
IC501
VIDEO INPUT SELECTOR
LINE2 (IC201)
LINE1 (IC201)
V PB (IC201)
Q406, 408
BUFFER
POWER CONT1
Q407
MUTE
RF701
MOD V
ANTENNA OUT
(See page 4-22)
CP-67 BORAD (CANAL+)
E500 MODEL
TU701 MOD V
AERTAL OUT
E500CP, E600B, E700B/EX/UX, E800BM/MP/VC MODEL
CN702
CN501
CN101
AV VIDEO IN
YC VIDEO IN
Q101, 102
BUFFER
IC101
TU VIDEO OUT
AV VIDEO OUT
OUT2
OUT1
OUT3
IN4
IN1
IN2
IN3
CK IN
D IN
S2
S3
S4
S5
S6
AUDIO I/O
Q103
CJ101 CANAL+
V OUT
V IN
R
G
B
I
AV CONT
TUNER
TU VIDEO (TU0701)
IC131
E700EX/UX MODEL
CN502
CN102
C+ CLK
C+ DATA
C+ DET
I CONT
R
G
B
CJ501 EURO-AV
Q501
BUFFER
(See page 4-35)
HI-6 BOARD
12V
Q502
Q503
AV CONT (IC201)
CN904
CN301
L2 (V) IN
PJ301
VIDEO LINE IN2
EXCEPT E600, E700UX MODEL
C+ CLK (IC302)
C+ DET (IC302)
C+ DATA (IC302)
TIMER/TUNER CONTROL
CN905
POWER CONT (IC302)

3-3. SERVO, SYSTEM CONTROL BLOCK DIAGRAM

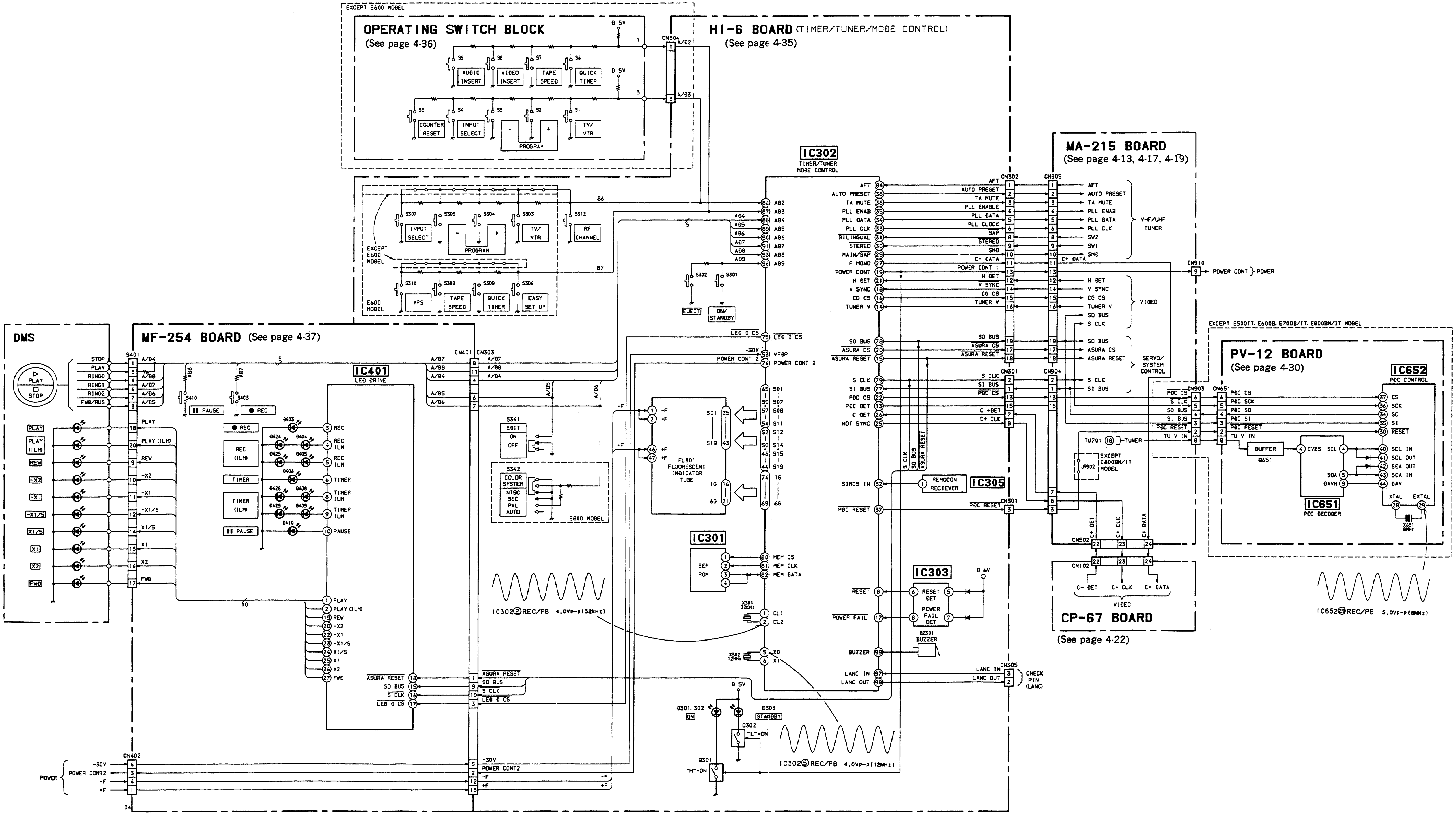
• The boards which signals only pass through may be omitted.



MA-215 BOARD (SERVO/SYSCON)
(See page 4-13)
(See page 4-16)
M901 DRUM MOTOR (1/2)
DC-58 BOARD (RELAY)
M902 CAPSTAN MOTOR (1/2)
CAPSTAN FG
IC101 (1/3) WAVE SHAPER
IC101 (2/3) CAPSTAN FG AMP
IC101 (3/3) CTL REC/PB AMP
IC201 (1/2) SERVO CONTROL
IC251 (1/2) DRUM ERROR INTEGRATOR
IC251 (2/2) CAPSTAN ERROR INTEGRATOR
IC201 ㊳ REC/PB 4.5Vp-p(V)
IC201 REC/PB 5Vp-p(150Hz)
IC201 ⑰ REC/PB 5Vp-p(4.3kHz)
IC201 ① REC/PB 5Vp-p(V)
IC201 PB 5.0Vp-p(V)
DRUM PG
DRUM FG
CAP FG
DRUM DA
CAP DA
REF 2.5V
CAP STOP
STEP PLS
CAP RVS
CAP TRQ1
CAP TRQ2
CAP TRQ3
Q252
CTL INDEX
CTL REC
REC CTL
PB CTL
CTL STEP
AF SW POS
RF SW POS
RF SWP
RF SWP → VIDEO
RV201 AF SWITCHING POSITION
RV202 RF SWITCHING POSITION
EXCEPT E500 MODEL
ACE HEAD
CTL HEAD
CN101
REC CTL AMP
TIMING TEN
3 VALUE DET
REC CTL
OPEN PB
PB CTL AMP
GCA
LEVEL DET
PB CTL LOGIC
PEAK DET
RTG MMV
BIAS 2.4V
DC (24V)
AMP GAIN
FOR CHECK
M901 DRUM MOTOR (2/2)
OUTPUT
MATRIX
HALL DEVICE
D VS
MTR 12V
M902 CAPSTAN MOTOR (2/2)
IC1
CAPSTAN MOTOR
HALL DEVICE
LIMITER
C.VS
SW 5V
IC201 ㊷ REC/PB 4.5Vp-p(16MHz)
IC201 REC/PB 3.5Vp-p(H)
IC201 (2/2) SYSTEM CONTROL
IC351 SYNC SERIAL BUS TO PARALLEL
Q353
Q351
DIVIDE
SWITCH
ADDRESS DECODER
TAIL MARK COUNTER
OUTPUT LATCH REGISTER
CLOCK GATE
ADDRESS SHIFT REGISTER
DATA SHIFT REGISTER
VDD
AVDD
AVREF
XTAL
EXTAL
X201 16MHz
S002 REC PROOF
REC PRF
DEW
DEW SENSOR
IC071 CAM MOTOR DRIVE
M903 CAM MOTOR
CAM 12V
CAM LOAD
CAM UNLOAD
ROTARY SWITCH (CAM ENCODER)
MODE1
MODE2
MODE3
MODE4
Q003 LED DRIVE
END LED
IC002 (1/2) TAPE END DETECT
Q001 TAKE UP END SENSOR
Q002 SUPPLY END SENSOR
TAPE LED D001
T SENS
S SENS
IC002 (2/2) REEL FG AMP
PH002 T REEL FG
PH001 T REEL FG
T REEL FG
S REEL FG
HEAD CONT
REC P
RF ENV
SP
V SYNC
REC
PWM
AD
JOG
LP
V PB
DRC SETTEI
RENTAL
EDIT
DVD
QHD ENABLE
SECAM
3.58NTSC
NT JUDGE
PAL 60
ME SECAM
Q354
Q204
Q402
SECAM (Q401)
ME SECAM (Q401)
V SYNC (IC402 ⑤)
OSD MUTE
AV CONT
LINE1
LINE2
VPB
NAPB
NA REC P
OSD MUTE (Q401)
AV CONT (Q503)
L1 CONT (IC601 ④)
L2 CONT (IC601 ②)
VPB (IC601 ⑦)
NA PB (IC851 ⑮)
NA REC P (IC851 ⑱)
VIDEO
NA SP
C+ CONT
BIL
A MUTE
AF ENV
SDI
SCK1
A MUTE (IC851 ⑬)
L1 CONT (IC606 ⑱, IC851 ⑰)
L2 CONT (IC606 ⑨, IC851 ⑰)
NA SP (IC851 ⑦)
C+ CONT (IC851 ⑰)
BIL (IC851 ⑰)
AUDIO
ASURA RESET
ASURA CS
SI BUS
SO BUS
SCLK
AC ONLINE
MOD CONT
TU/VTR (RF701 ⑤) → VHF/UHF TUNER
CN908
CN907
CN902
CN905
CN904
CN910
EXCEPT E500 MODEL

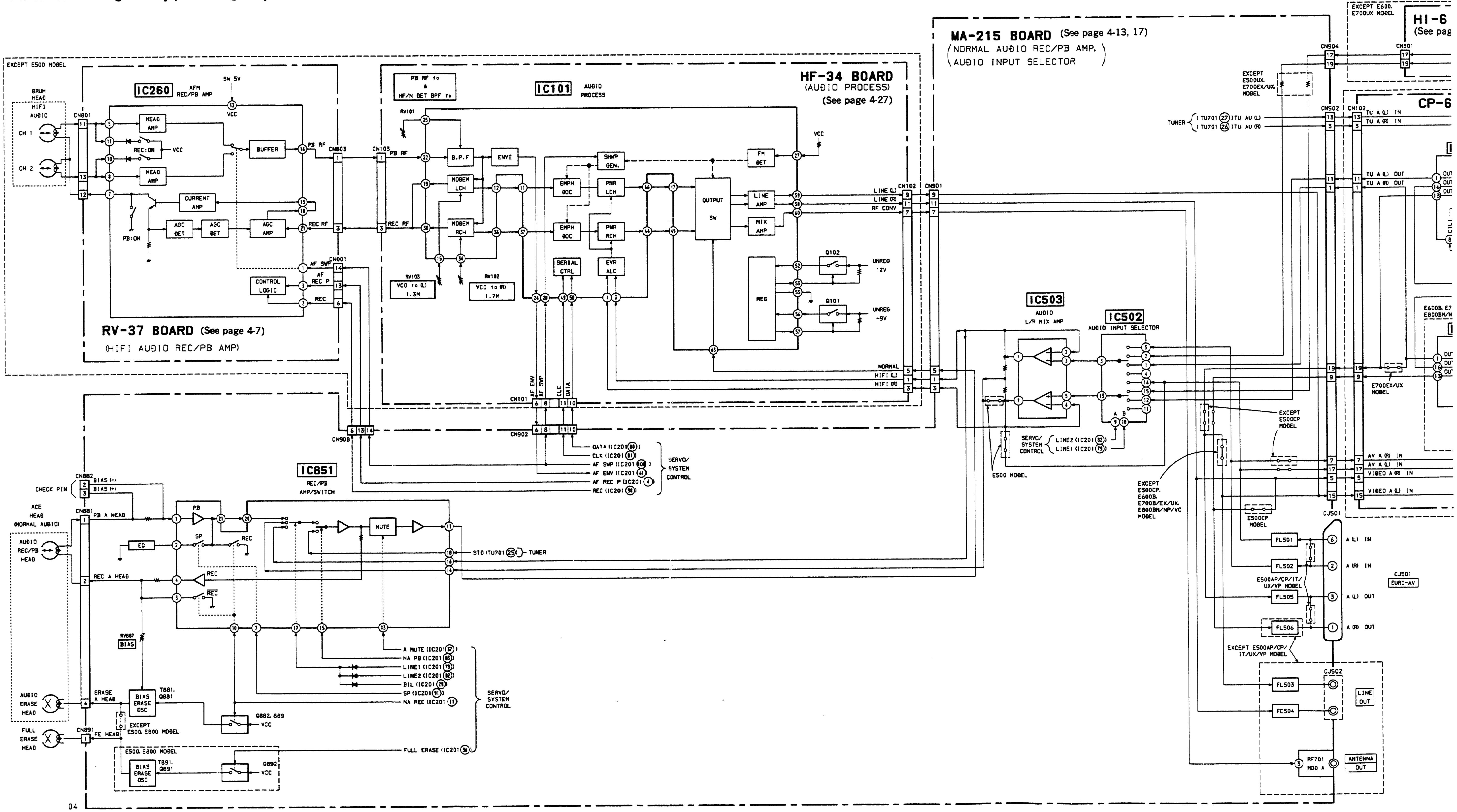
3-4. TIMER, TUNER, MODE CONTROL BLOCK DIAGRAM

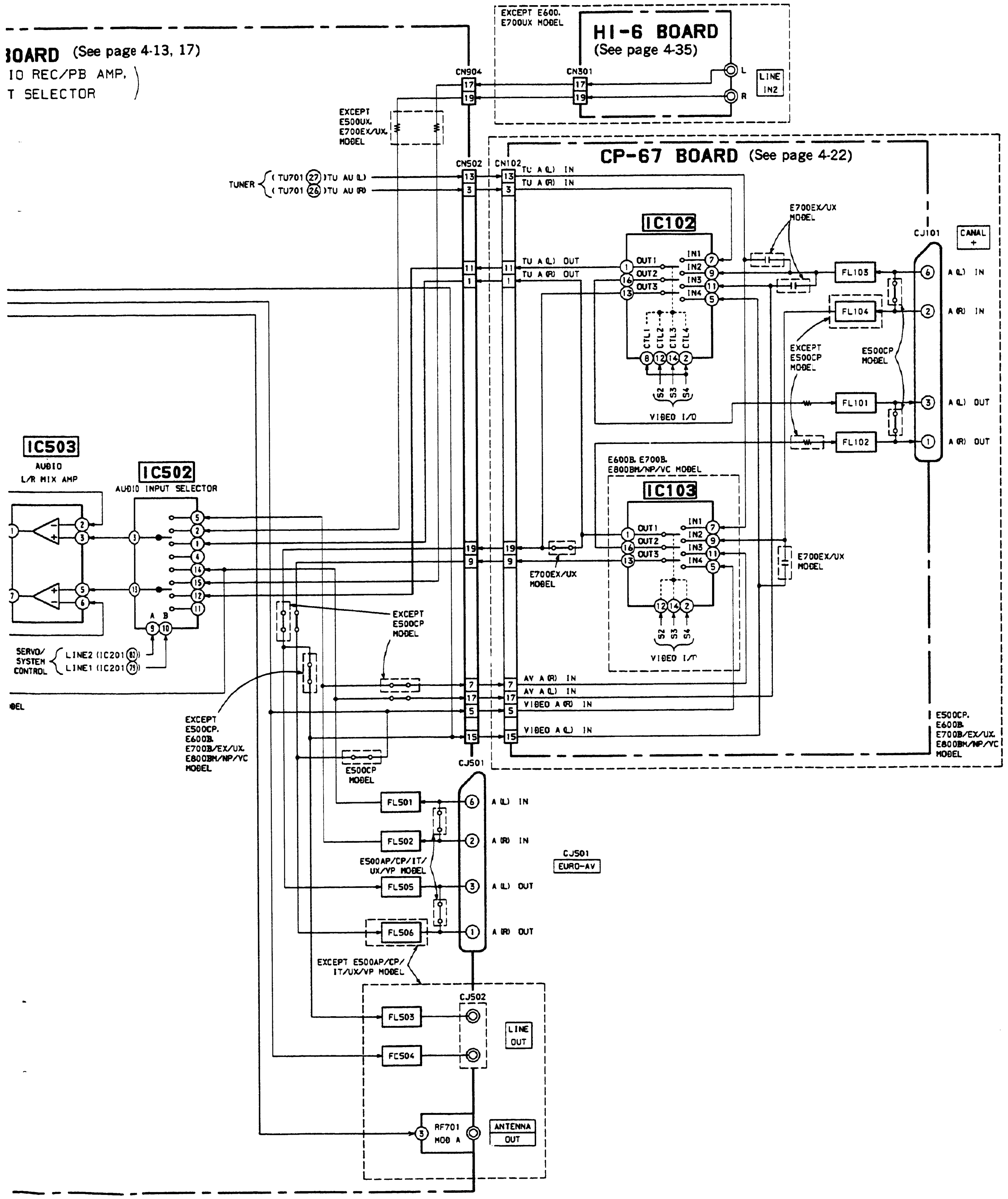
- **The boards which signals only pass through may be omitted.**


EXCEPT E600 MODEL
OPERATING SWITCH BLOCK
(See page 4-36)
AUDIO INSERT
VIDEO INSERT
TAPE SPEED
QUICK TIMER
COUNTER RESET
INPUT SELECT
PROGRAM
TV/VTR
HI-6 BOARD (TIMER/TUNER/MODE CONTROL)
(See page 4-35)
IC302
TIMER/TUNER MODE CONTROL
RF CHANNEL
EXCEPT E600 MODEL
E600 MODEL
VPS
EASY SET UP
EJECT
ON/STANDBY
MA-215 BOARD
(See page 4-13, 4-17, 4-19)
AFT
AUTO PRESET
TA MUTE
PLL ENAB
PLL DATA
PLL CLK
BILINGUAL
STEREO
MAIN/SAP
F MONO
POWER CONT
H DET
V SYNC
CG CS
TUNER V
VHF/UHF TUNER
VIDEO
SO BUS
ASURA CS
ASURA RESET
SERVO/SYSTEM CONTROL
S CLK
SI BUS
PDC CS
PDC DET
C DET
NOT SYNC
SIRCS IN
PDC RESET
REMOCON RECIEVER
IC305
POWER CONT
POWER
EXCEPT E500IT, E600B, E700B/IT, E800BM/IT MODEL
PV-12 BOARD
(See page 4-30)
IC652
PDC CONTROL
IC651
PDC DECODER
BUFFER
Q651
TU701
EXCEPT E800BM/IT MODEL
CP-67 BOARD
(See page 4-22)
C+ DET
C+ CLK
C+ DATA
IC652㉘REC/PB 5.0Vp-p(8MHz)
DMS
PLAY
STOP
MF-254 BOARD (See page 4-37)
IC401
LED DRIVE
PAUSE
REC
REC (ILM)
TIMER
TIMER (ILM)
PLAY (ILM)
REW
-X2
-X1
-X1/5
X1/5
X1
X2
FWD
S341
EDIT
ON
OFF
S342
COLOR SYSTEM
NTSC
SEC
PAL
AUTO
E600 MODEL
FL301
FLUORESCENT INDICATOR TUBE
IC301
EEP ROM
MEM CS
MEM CLK
MEM DATA
IC302②REC/PB 4.0Vp-p(32kHz)
X301 32kHz
X302 12MHz
IC303
RESET DET
POWER FAIL DET
BZ301
BUZZER
LANC IN
LANC OUT
CHECK PIN (LANC)
D301, 302 ON
D303 STANDBY
Q302 "L"=ON
Q301 "H"=ON
IC302⑤REC/PB 4.0Vp-p(12MHz)
-30V
POWER CONT2
-F
+F
POWER

3-5. AUDIO BLOCK DIAGRAM

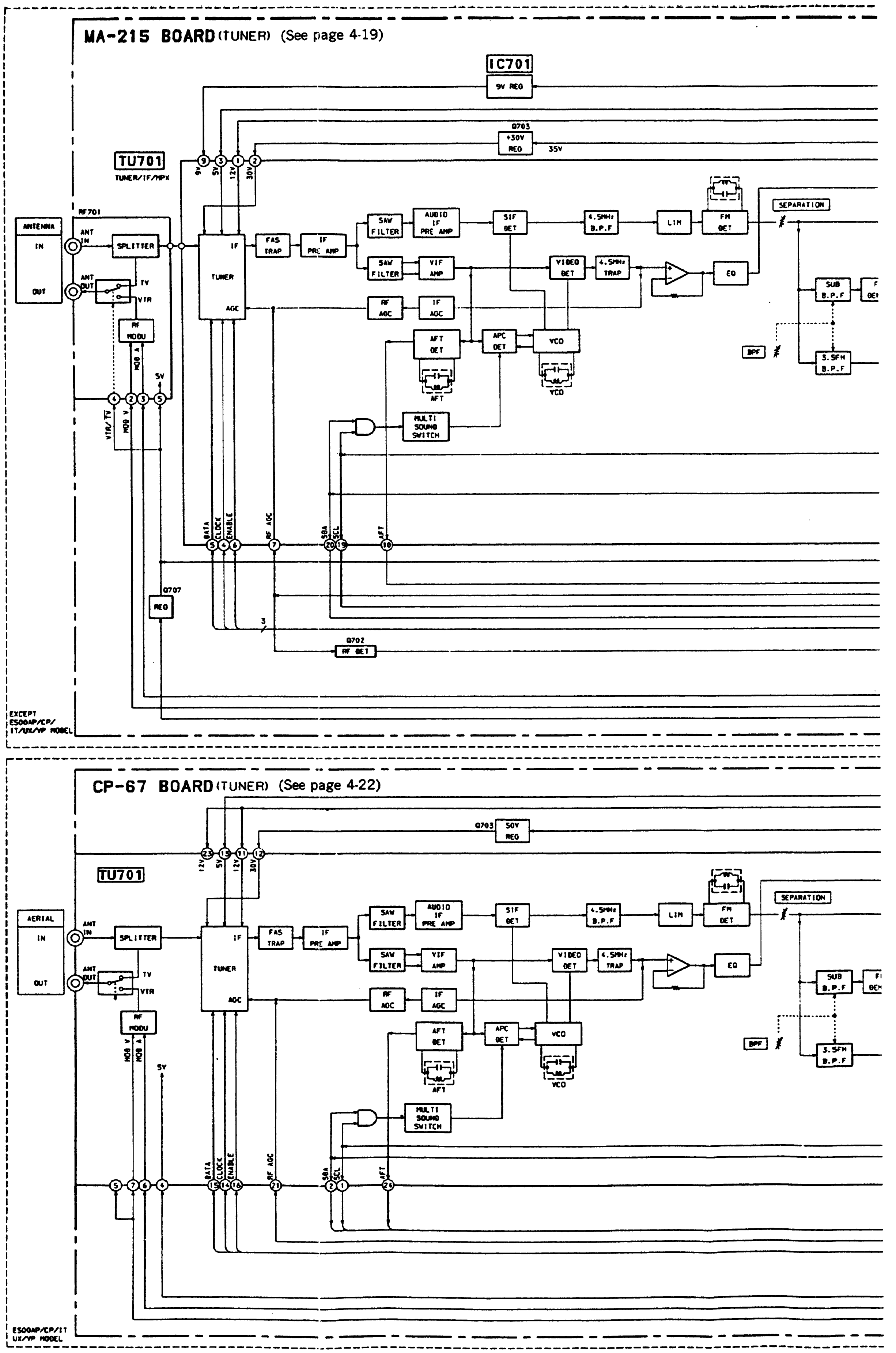
- The boards which signals only pass through may be omitted.


EXCEPT E500 MODEL
RV-37 BOARD (See page 4-7)
(HIFI AUDIO REC/PB AMP)
IC260
AFM REC/PB AMP
SW 5V
VCC
DRUM HEAD
HIFI AUDIO
CH 1
CH 2
CN801
HEAD AMP
REC:ON
BUFFER
PB RF
CURRENT AMP
AGC DET
AGC AMP
REC RF
PB:ON
CONTROL LOGIC
AF SWP
AF REC P
REC
CN803
CN001
HF-34 BOARD
(AUDIO PROCESS)
(See page 4-27)
IC101
AUDIO PROCESS
PB RF fo & HF/N DET BPF fo
RV101
CN103
B.P.F
ENVE
MODEM LCH
MODEM RCH
RV103
VCO fo (L) 1.3M
RV102
VCO fo (R) 1.7M
SWP GEN.
EMPH DOC
PNR LCH
PNR RCH
SERIAL CTRL
EVR ALC
OUTPUT SW
FM DET
LINE AMP
MIX AMP
REG
Q102
UNREG 12V
Q101
UNREG -9V
LINE (L)
LINE (R)
RF CONV
NORMAL
HIFI (L)
HIFI (R)
CN102
CN901
AF ENV
AF SWP
CLK
DATA
CN101
CN902
CN908
DATA (IC201 80)
CLK (IC201 81)
AF SWP (IC201 100)
AF ENV (IC201 61)
AF REC P (IC201 4)
REC (IC201 98)
SERVO/ SYSTEM CONTROL
MA-215 BOARD (See page 4-13, 17)
(NORMAL AUDIO REC/PB AMP, AUDIO INPUT SELECTOR)
IC503
AUDIO L/R MIX AMP
IC502
AUDIO INPUT SELECTOR
A B
SERVO/ SYSTEM CONTROL
LINE2 (IC201 82)
LINE1 (IC201 79)
E500 MODEL
EXCEPT E500UX, E700EX/UX MODEL
CN904
CN502
TUNER
(TU701 27) TU AU (L)
(TU701 26) TU AU (R)
EXCEPT E600, E700UX MODEL
HI-6
(See pag
CN301
CP-6
CN102
TU A (L) IN
TU A (R) IN
TU A (L) OUT
TU A (R) OUT
OUT
CTL
E700EX/UX MODEL
E600B, E7
E800BM/N
EXCEPT E500CP MODEL
AV A (R) IN
AV A (L) IN
VIDEO A (R) IN
VIDEO A (L) IN
EXCEPT E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
E500CP MODEL
CJ501
FL501
A (L) IN
FL502
A (R) IN
E500AP/CP/IT/UX/VP MODEL
FL505
A (L) OUT
FL506
A (R) OUT
CJ501
EURO-AV
EXCEPT E500AP/CP/IT/UX/VP MODEL
CJ502
FL503
FL504
LINE OUT
RF701
MOD A
ANTENNA OUT
IC851
REC/PB AMP/SWITCH
CN882
CHECK PIN
BIAS (-)
BIAS (+)
ACE HEAD (NORMAL AUDIO)
CN881
PB A HEAD
AUDIO REC/PB HEAD
EQ
PB
SP
REC
REC A HEAD
MUTE
STD (TU701 25) TUNER
RV887
BIAS
A MUTE (IC201 37)
NA PB (IC201 85)
LINE1 (IC201 79)
LINE2 (IC201 82)
BIL (IC201 29)
SP (IC201 91)
NA REC (IC201 11)
SERVO/ SYSTEM CONTROL
AUDIO ERASE HEAD
ERASE A HEAD
BIAS ERASE OSC
T881, Q881
Q882, 889
VCC
EXCEPT E500, E800 MODEL
FULL ERASE HEAD
CN891
FE HEAD
E500, E800 MODEL
T891, Q891
Q892
FULL ERASE (IC201 36)
04


BOARD (See page 4-13, 17)
IO REC/PB AMP,
T SELECTOR
HI-6 BOARD
(See page 4-35)
EXCEPT E600, E700UX MODEL
CN904
CN301
LINE IN2
L
R
EXCEPT E500UX, E700EX/UX MODEL
CP-67 BOARD (See page 4-22)
CN502
CN102
TUNER
TU701 ㉗ TU AU (L)
TU701 ㉖ TU AU (R)
TU A (L) IN
TU A (R) IN
TU A (L) OUT
TU A (R) OUT
IC102
OUT1
OUT2
OUT3
IN1
IN2
IN3
IN4
CTL1
CTL2
CTL3
CTL4
S2
S3
S4
VIDEO I/O
E700EX/UX MODEL
CJ101
CANAL +
FL103
FL104
FL101
FL102
A (L) IN
A (R) IN
A (L) OUT
A (R) OUT
EXCEPT E500CP MODEL
E500CP MODEL
E600B, E700B, E800BM/NP/VC MODEL
IC103
VIDEO I/F
IC503
AUDIO L/R MIX AMP
IC502
AUDIO INPUT SELECTOR
SERVO/SYSTEM CONTROL
LINE2 (IC201 ㉜)
LINE1 (IC201 ㉛)
EXCEPT E500CP MODEL
AV A (R) IN
AV A (L) IN
VIDEO A (R) IN
VIDEO A (L) IN
E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
EXCEPT E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
E500CP MODEL
CJ501
FL501
FL502
FL505
FL506
CJ501 EURO-AV
E500AP/CP/IT/UX/VP MODEL
EXCEPT E500AP/CP/IT/UX/VP MODEL
CJ502
FL503
FL504
LINE OUT
RF701 MOD A
ANTENNA OUT

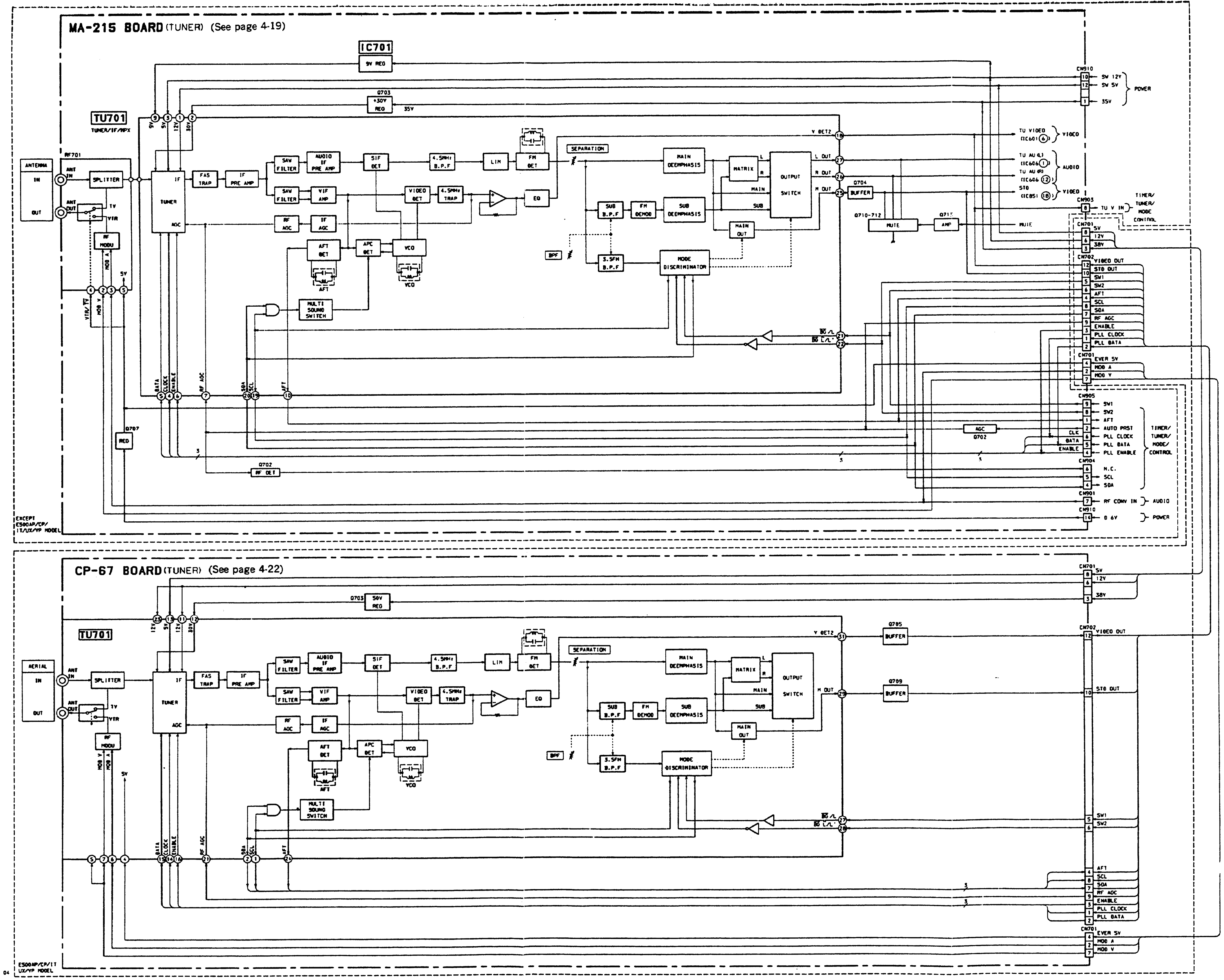
3-6. TUNER BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


MA-215 BOARD (TUNER) (See page 4-19)
IC701
9V REG
Q703
+30V REG
35V
TU701
TUNER/IF/MPX
RF701
ANTENNA
IN
OUT
ANT IN
ANT OUT
SPLITTER
TV
VTR
RF MODU
IF
TUNER
AGC
FAS TRAP
IF PRE AMP
SAW FILTER
AUDIO IF PRE AMP
VIF AMP
RF AGC
IF AGC
SIF DET
4.5MHz B.P.F
LIM
FM DET
SEPARATION
VIDEO DET
4.5MHz TRAP
EQ
AFT DET
AFT
APC DET
VCO
MULTI SOUND SWITCH
SUB B.P.F
BPF
3.5FH B.P.F
DATA
CLOCK
ENABLE
RF AGC
SDA
SCL
AFT
Q707 REG
Q702 RF DET
EXCEPT E500AP/CP/IT/UX/VP MODEL
CP-67 BOARD (TUNER) (See page 4-22)
Q703 50V REG
TU701
AERIAL
IN
OUT
E500AP/CP/IT/UX/VP MODEL

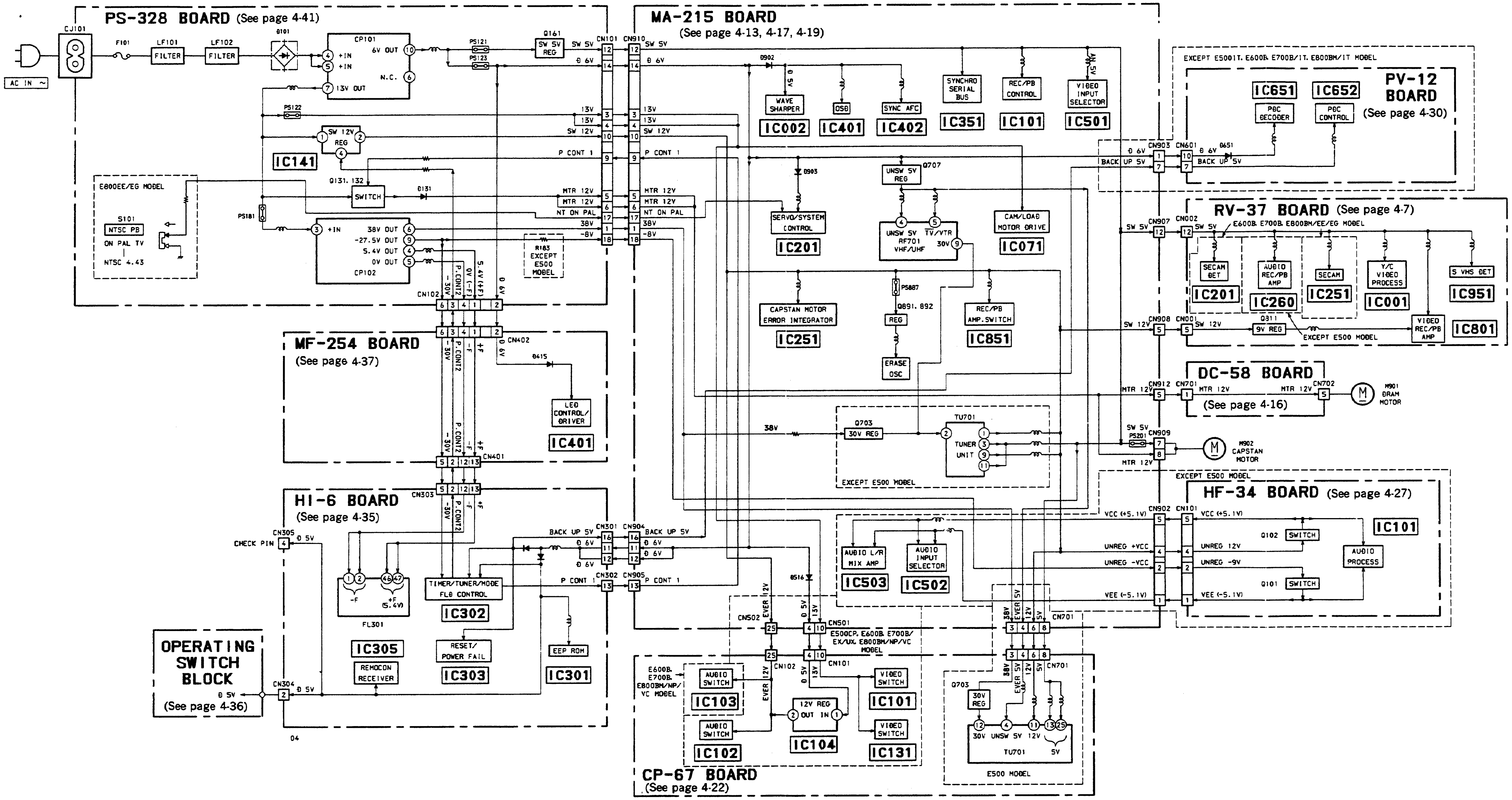
3-6. TUNER BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.


MA-215 BOARD (TUNER) (See page 4-19)
IC701
9V REG
Q703
+30V REG
35V
TU701
TUNER/IF/MPX
9V
5V
12V
30V
ANTENNA
IN
OUT
RF701
ANT IN
ANT OUT
SPLITTER
TV
VTR
RF MODU
MOD A
MOD V
VTR/TV
5V
IF
TUNER
AGC
FAS TRAP
IF PRE AMP
SAW FILTER
AUDIO IF PRE AMP
SIF DET
4.5MHz B.P.F
LIM
FM DET
SAW FILTER
VIF AMP
VIDEO DET
4.5MHz TRAP
EQ
RF AGC
IF AGC
AFT DET
AFT
APC DET
VCO
MULTI SOUND SWITCH
SEPARATION
BPF
MAIN DEEMPHASIS
MATRIX
L
R
MAIN
SUB
OUTPUT SWITCH
SUB B.P.F
FM DEMOD
SUB DEEMPHASIS
MAIN OUT
3.5FH B.P.F
MODE DISCRIMINATOR
V DET2
L OUT
R OUT
M OUT
BG
Q704
BUFFER
Q710-712
MUTE
Q715
AMP
DATA
CLOCK
ENABLE
RF AGC
SDA
SCL
AFT
Q707
REG
Q702
RF DET
AGC
Q702
CLK
DATA
ENABLE
3
CN910
SW 12V
SW 5V
35V
POWER
TU VIDEO (IC601 ⑥)
VIDEO
TU AU (L) (IC606 ①)
TU AU (R) (IC606 ⑫)
AUDIO
STD (IC851 ⑱)
VIDEO
CN903
TU V IN
TIMER/ TUNER/ MODE CONTROL
MUTE
CN701
5V
12V
38V
CN702
VIDEO OUT
STD OUT
SW1
SW2
AFT
SCL
SDA
RF AGC
ENABLE
PLL CLOCK
PLL DATA
CN701
EVER 5V
MOD A
MOD V
CN905
SW1
SW2
AFT
AUTO PRST
PLL CLOCK
PLL DATA
PLL ENABLE
TIMER/ TUNER/ MODE/ CONTROL
CN904
N.C.
SCL
SDA
CN901
RF CONV IN
AUDIO
CN910
D 6V
POWER
EXCEPT E500AP/CP/ IT/UX/VP MODEL
CP-67 BOARD (TUNER) (See page 4-22)
Q703
50V REG
TU701
12V
5V
12V
30V
AERIAL
IN
OUT
ANT IN
ANT OUT
SPLITTER
TV
VTR
RF MODU
MOD V
MOD A
5V
IF
TUNER
AGC
FAS TRAP
IF PRE AMP
SAW FILTER
AUDIO IF PRE AMP
SIF DET
4.5MHz B.P.F
LIM
FM DET
SAW FILTER
VIF AMP
VIDEO DET
4.5MHz TRAP
EQ
RF AGC
IF AGC
AFT DET
AFT
APC DET
VCO
MULTI SOUND SWITCH
SEPARATION
BPF
MAIN DEEMPHASIS
MATRIX
L
R
MAIN
SUB
OUTPUT SWITCH
SUB B.P.F
FM DEMOD
SUB DEEMPHASIS
MAIN OUT
3.5FH B.P.F
MODE DISCRIMINATOR
V DET2
M OUT
BG
DATA
CLOCK
ENABLE
RF AGC
SDA
SCL
AFT
Q705
BUFFER
Q709
BUFFER
3
CN701
5V
12V
38V
CN702
VIDEO OUT
STD OUT
SW1
SW2
AFT
SCL
SDA
RF AGC
ENABLE
PLL CLOCK
PLL DATA
CN701
EVER 5V
MOD A
MOD V
E500AP/CP/IT UX/VP MODEL
04

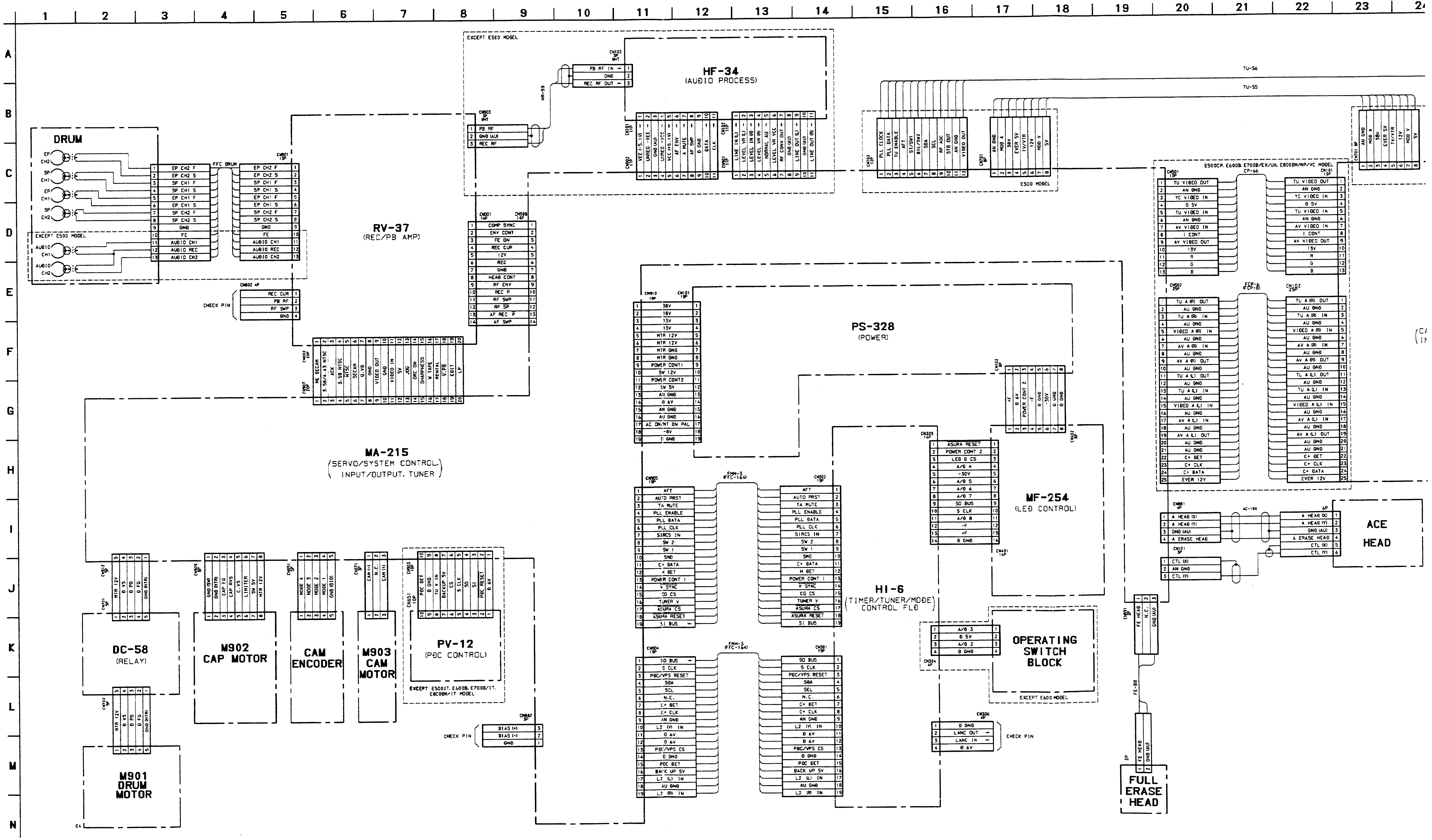
3-7. POWEOR BLOCK DIAGRAM

- The boards which signals only pass through may be omitted.

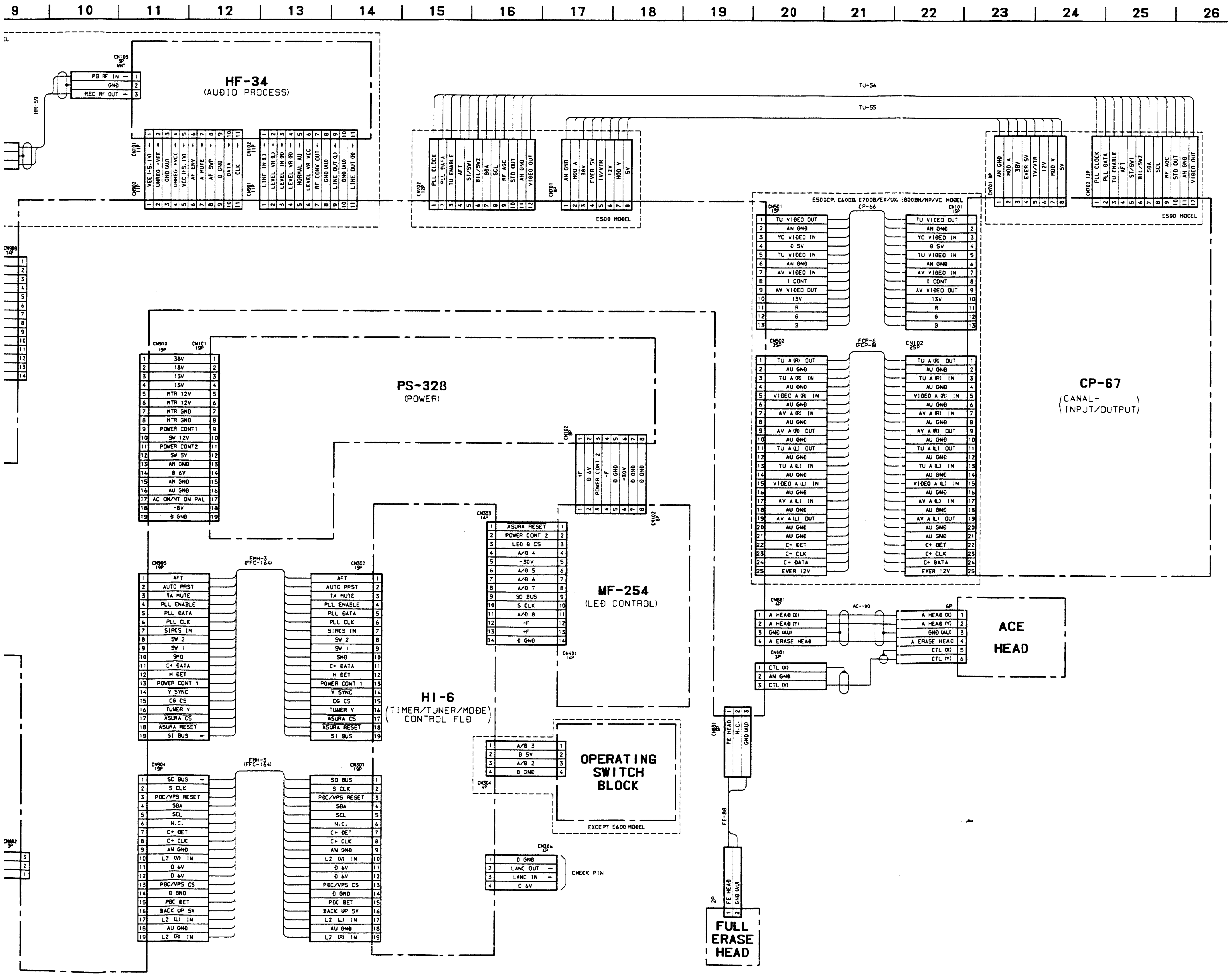

PS-328 BOARD (See page 4-41)
CJ101
AC IN ~
F101
LF101 FILTER
LF102 FILTER
D101
CP101
+IN
6V OUT
N.C.
13V OUT
PS121
PS123
PS122
Q161 SW 5V REG
SW 5V
θ 6V
13V
SW 12V
P CONT 1
SW 12V REG
IC141
Q131, 132 SWITCH
Q131
E800EE/EG MODEL
S101 NTSC PB
ON PAL TV
NTSC 4.43
PS181
CP102
38V OUT
-27.5V OUT
5.4V OUT
0V OUT
MTR 12V
NT ON PAL
38V
-8V
R183 EXCEPT E500 MODEL
CN101
CN102
MA-215 BOARD (See page 4-13, 4-17, 4-19)
CN910
D902
WAVE SHARPER
IC002
OSD
IC401
SYNC AFC
IC402
SYNCHRO SERIAL BUS
IC351
REC/PB CONTROL
IC101
VIDEO INPUT SELECTOR
IC501
D903
SERVO/SYSTEM CONTROL
IC201
UNSW 5V REG
Q707
UNSW 5V
TV/VTR
RF701
VHF/UHF
30V
CAM/LOAD MOTOR DRIVE
IC071
CAPSTAN MOTOR ERROR INTEGRATOR
IC251
PS887
Q891, 892 REG
ERASE OSC
REC/PB AMP.SWITCH
IC851
Q703 30V REG
TU701
TUNER UNIT
EXCEPT E500 MODEL
AUDIO L/R MIX AMP
IC503
AUDIO INPUT SELECTOR
IC502
D516
EVER 12V
EVER 5V
CN501
E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
MF-254 BOARD (See page 4-37)
CN402
D415
LED CONTROL/DRIVER
IC401
CN401
HI-6 BOARD (See page 4-35)
CN303
CN305
CHECK PIN
θ 5V
FL301
TIMER/TUNER/MODE FLD CONTROL
IC302
IC305
REMOCON RECEIVER
RESET/POWER FAIL
IC303
EEP ROM
IC301
BACK UP 5V
CN301
CN904
CN302
CN905
CN304
OPERATING SWITCH BLOCK (See page 4-36)
04
EXCEPT E500IT, E600B, E700B/IT, E800BM/IT MODEL
PV-12 BOARD (See page 4-30)
IC651
PBC DECODER
IC652
PBC CONTROL
CN903
CN601
D651
BACK UP 5V
RV-37 BOARD (See page 4-7)
CN907
CN002
E600B, E700B, E800BM/EE/EG MODEL
SECAM DET
IC201
AUDIO REC/PB AMP
IC260
SECAM
IC251
Y/C VIDEO PROCESS
IC001
S VHS DET
IC951
CN908
CN001
Q311 9V REG
EXCEPT E500 MODEL
VIDEO REC/PB AMP
IC801
DC-58 BOARD (See page 4-16)
CN912
CN701
CN702
MTR 12V
M901 DRAM MOTOR
PS201
CN909
M902 CAPSTAN MOTOR
EXCEPT E500 MODEL
HF-34 BOARD (See page 4-27)
CN902
CN101
VCC (+5.1V)
UNREG +VCC
UNREG -VCC
VEE (-5.1V)
UNREG 12V
UNREG -9V
Q102 SWITCH
Q101 SWITCH
IC101
AUDIO PROCESS
CN502
CN102
CN701
E600B, E700B, E800BM/NP/VC MODEL
AUDIO SWITCH
IC103
AUDIO SWITCH
IC102
12V REG
OUT IN
IC104
VIDEO SWITCH
IC101
VIDEO SWITCH
IC131
CP-67 BOARD (See page 4-22)
Q703 30V REG
30V UNSW 5V 12V
TU701 5V
E500 MODEL

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAMS


DRUM
RV-37
(REC/PB AMP)
HF-34
(AUDIO PROCESS)
EXCEPT E500 MODEL
MA-215
(SERVO/SYSTEM CONTROL,
INPUT/OUTPUT, TUNER)
PS-328
(POWER)
MF-254
(LED CONTROL)
HI-6
(TIMER/TUNER/MODE CONTROL FLD)
OPERATING SWITCH BLOCK
EXCEPT E600 MODEL
DC-58
(RELAY)
M902
CAP MOTOR
CAM ENCODER
M903
CAM MOTOR
PV-12
(PDC CONTROL)
EXCEPT E500IT, E600B, E700B/IT, E800BM/IT MODEL
M901
DRUM MOTOR
ACE HEAD
FULL ERASE HEAD
E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
CHECK PIN
TU-56
TU-55
E500 MODEL
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
K
L
M
N

MS


9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
HF-34
(AUDIO PROCESS)
PS-328
(POWER)
MF-254
(LED CONTROL)
HI-6
(TIMER/TUNER/MODE CONTROL FLD)
OPERATING SWITCH BLOCK
EXCEPT E600 MODEL
CHECK PIN
CP-67
(CANAL+ INPUT/OUTPUT)
ACE HEAD
FULL ERASE HEAD
TU-56
TU-55
E500 MODEL
FCP-6
AC-190
FE-86
FMH-3 (FFC-164)
HR-59

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is is printed in each block.)

● For printed wiring boards.

- ○ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side. *
- Circled numbers refer to waveforms.

● For schematic diagram.

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
- Chip resistor are 1/8W or 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ☐ : panel designation.
- △ . : internal component.
- ☐ : adjustment for repair. *
- ─── : B + Line. *
- - - - : B – Line. *
- ⇨ : IN/OUT direction of (+, –) B line. *
- Circled numbers refer to waveforms. *
- Voltages are dc between ground and measurement points. *
- Readings are taken with a color-bar signal input. *
- Readings are taken with a digital multimeter (DC10MΩ). *
- Voltage variations may be noted due to normal production tolerances. *

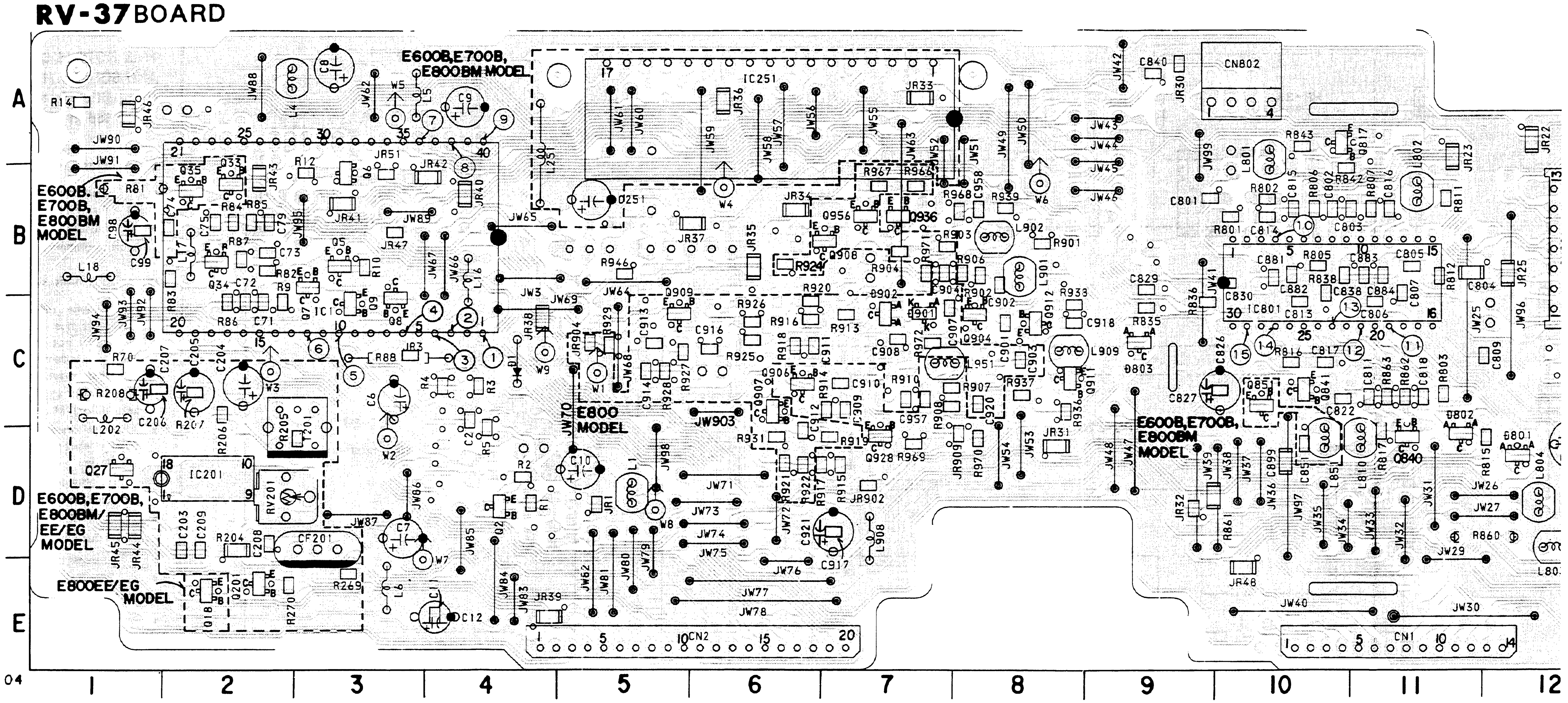
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

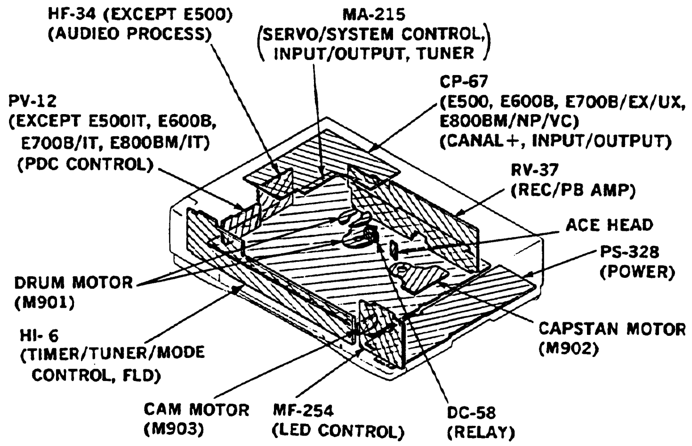
When indicating parts by reference number, please include the board name.

*: indicated by the color red.

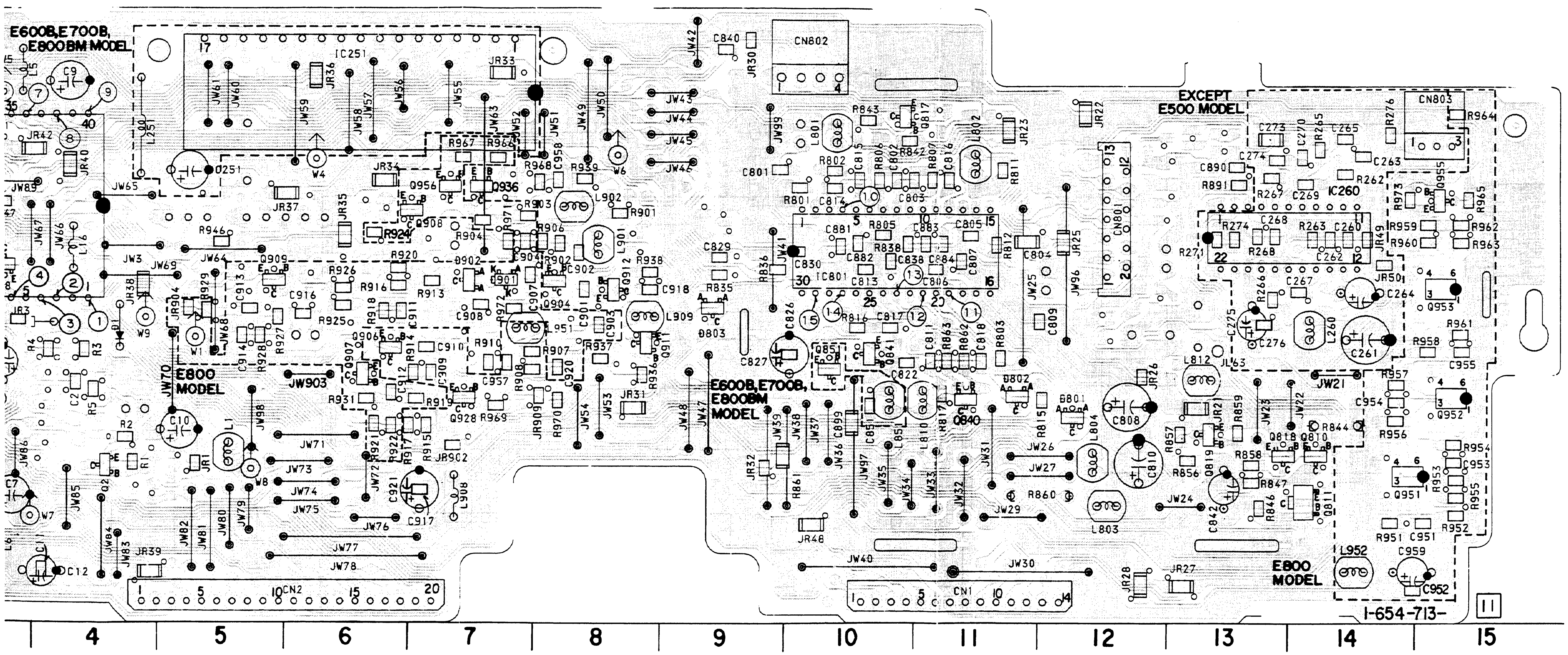
RV-37 (Y/C VIDEO PROCESS, HiFi AUDIO, HEAD AMP) PRINTED WIRING BOARD

— Ref. No. RV-37 BOARD : 2,000 series —


RV-37 BOARD
E600B,E700B, E800BM MODEL
E600B, E700B, E800BM MODEL
E600B,E700B, E800BM/ EE/EG MODEL
E800EE/EG MODEL
E800 MODEL
E600B,E700B, E800BM MODEL
IC251
IC201
IC1
IC801
CN802
CN2
CN1
CF201
RV201
A
B
C
D
E
04
1
2
3
4
5
6
7
8
9
10
11
12


HF-34 (EXCEPT E500) (AUDIEO PROCESS)
MA-215 (SERVO/SYSTEM CONTROL, INPUT/OUTPUT, TUNER)
PV-12 (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT) (PDC CONTROL)
CP-67 (E500, E600B, E700B/EX/UX, E800BM/NP/VC) (CANAL+, INPUT/OUTPUT)
RV-37 (REC/PB AMP)
ACE HEAD
PS-328 (POWER)
DRUM MOTOR (M901)
CAPSTAN MOTOR (M902)
HI- 6 (TIMER/TUNER/MODE CONTROL, FLD)
CAM MOTOR (M903)
MF-254 (LED CONTROL)
DC-58 (RELAY)

P) PRINTED WIRING BOARD


E600B,E700B,
E800BM MODEL
E800
MODEL
E600B,E700B,
E800BM
MODEL
EXCEPT
E500 MODEL
E800
MODEL
IC251
IC801
IC260
CN802
CN803
CN801
CN2
CN1
1-654-713-
11
4
5
6
7
8
9
10
11
12
13
14
15

RV-37 BOARD	
CN001	E-5
CN002	E-5
CN801	B-12
CN802	A-10
CN803	B-15
D001	C-4
D801	C-12
D802	C-12
D803	C-9
D901	C-7
D902	C-7
IC001	B-3
IC201	D-2
IC251	A-6
IC260	B-14
IC801	B-10
Q002	D-4
Q005	B-3
Q006	B-3
Q007	B-3
Q008	C-3
Q009	C-3
Q018	E-2
Q027	D-1
Q033	B-2
Q034	B-2
Q035	B-2
Q201	E-2
Q801	E-2
Q851	C-10
Q810	D-14
Q811	D-14
Q817	A-10
Q818	D-13
Q819	D-13
Q840	C-11
Q841	C-10
Q851	C-10
Q904	C-8
Q906	C-6
Q907	C-6
Q908	B-7
Q909	C-5
Q911	C-9
Q912	C-8
Q928	D-7
Q951	D-14
Q952	C-15
Q953	C-15
Q955	B-15
Q956	B-7

0B/EX/UX,

OUTPUT)

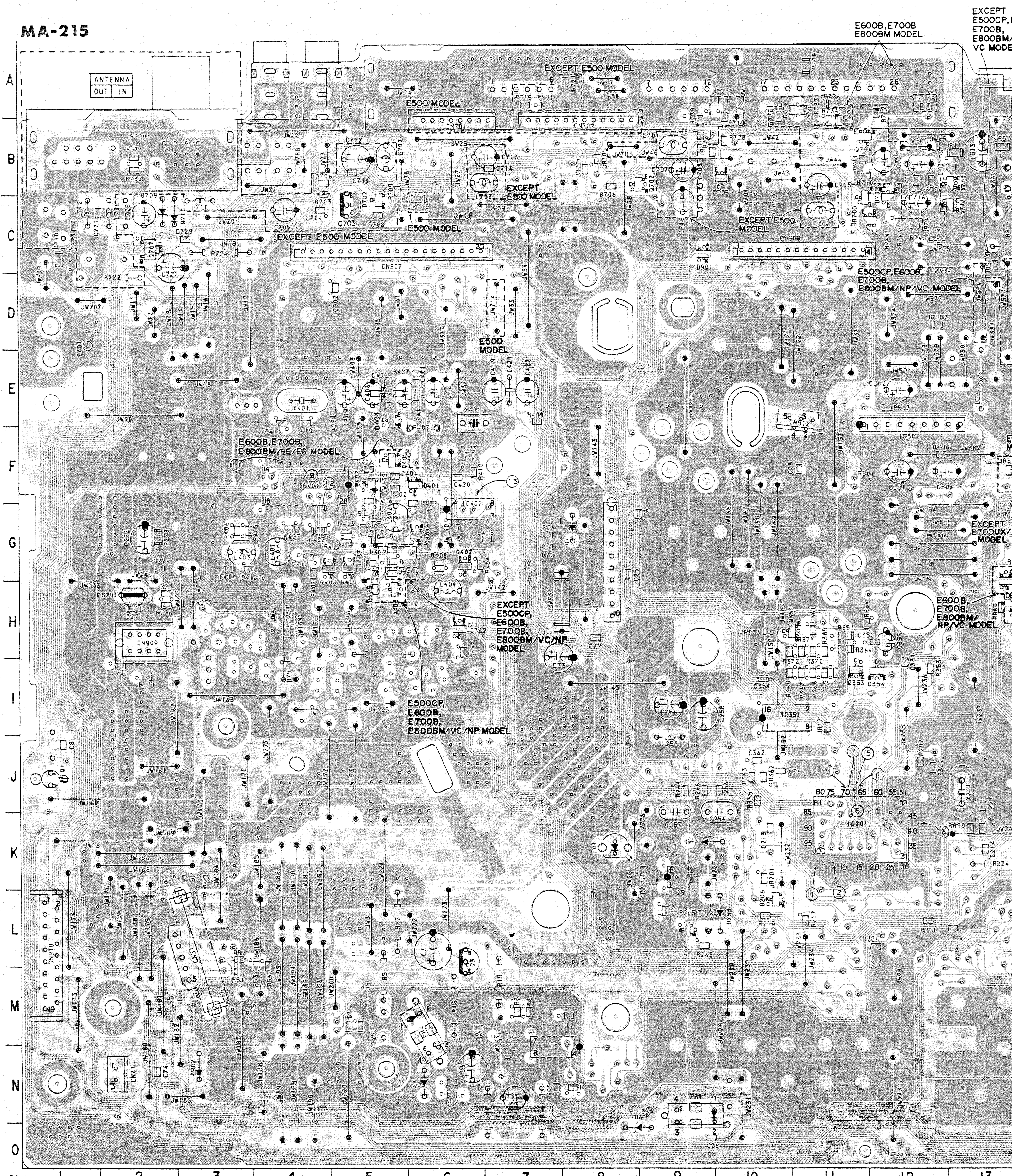
AMP)

HEAD
PS-328
(POWER)

AN MOTOR
)

MA-215 (SERVO/SYSTEM CONTROL), DC-58 (RELAY) PRINTED WIRING BOARD

— Ref. No. MA-215 BOARD : 1,000 series, DC-58 BOARD : 4,000 series —


MA-215
ANTENNA
OUT IN
EXCEPT E500 MODEL
E500 MODEL
E600B,E700B
E800BM MODEL
EXCEPT
E500CP,
E700B,
E800BM/
VC MODEL
EXCEPT E500 MODEL
E500 MODEL
EXCEPT E500 MODEL
E500CP,E600B,
E700B,
E800BM/NP/VC MODEL
E500
MODEL
E600B,E700B,
E800BM/EE/EG MODEL
EXCEPT
E500CP,
E600B,
E700B,
E800BM/VC/NP
MODEL
E500CP,
E600B,
E700B,
E800BM/VC/NP MODEL
EXCEPT
E700UX/
MODEL
E600B,
E700B,
E800BM/
NP/VC MODEL
CN907
CN908
CN909
CN910
IC351
IC201
IC402
X401
PS201
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G
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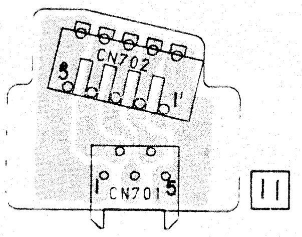
DC-58 BOARD


CN702
CN701
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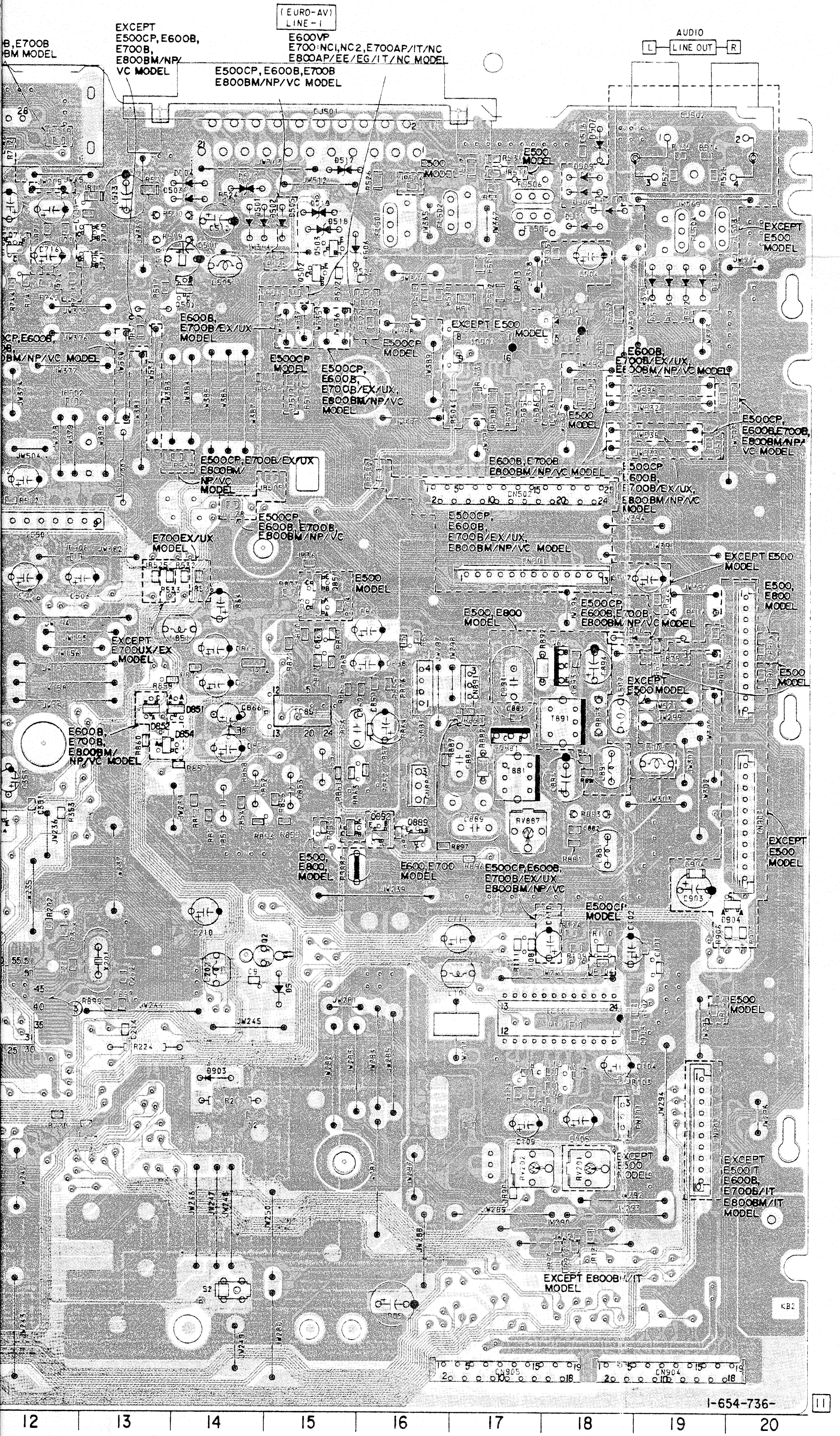
1'
5'
11

1-654-718-


EXCEPT E500CP, E600B, E700B, E800BM/NP/VC MODEL
(EURO-AV) LINE-1
E600VP
E700:NC1,NC2,E700AP/IT/NC
E800AP/EE/EG/IT/NC MODEL
E500CP, E600B, E700B E800BM/NP/VC MODEL
AUDIO
L LINE OUT R
CJ501
CJ502
E500 MODEL
EXCEPT E500 MODEL
E600B, E700B/EX/UX MODEL
E500CP MODEL
E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
E600B, E700B/EX/UX, E800BM/NP/VC MODEL
E500CP, E700B/EX/UX E800BM/NP/VC MODEL
E600B, E700B E800BM/NP/VC MODEL
E500CP, E600B, E700B E800BM/NP/VC MODEL
CN502
CN701
E700EX/UX MODEL
E500, E800 MODEL
EXCEPT E700UX/EX MODEL
E600B, E700B, E800BM/NP/VC MODEL
E500CP, E600B, E700B E800BM/NP/VC MODEL
E500 MODEL
E500, E800 MODEL
E600, E700 MODEL
E500CP, E600B, E700B/EX/UX E800BM/NP/VC
EXCEPT E500 MODEL
E500CP MODEL
EXCEPT E500IT E600B, E700B/IT E800BM/IT MODEL
EXCEPT E800BM/IT MODEL
CN905
CN904
1-654-736-
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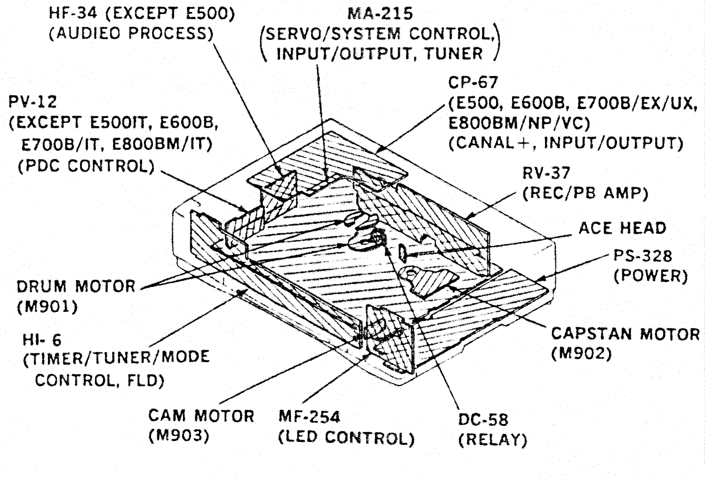
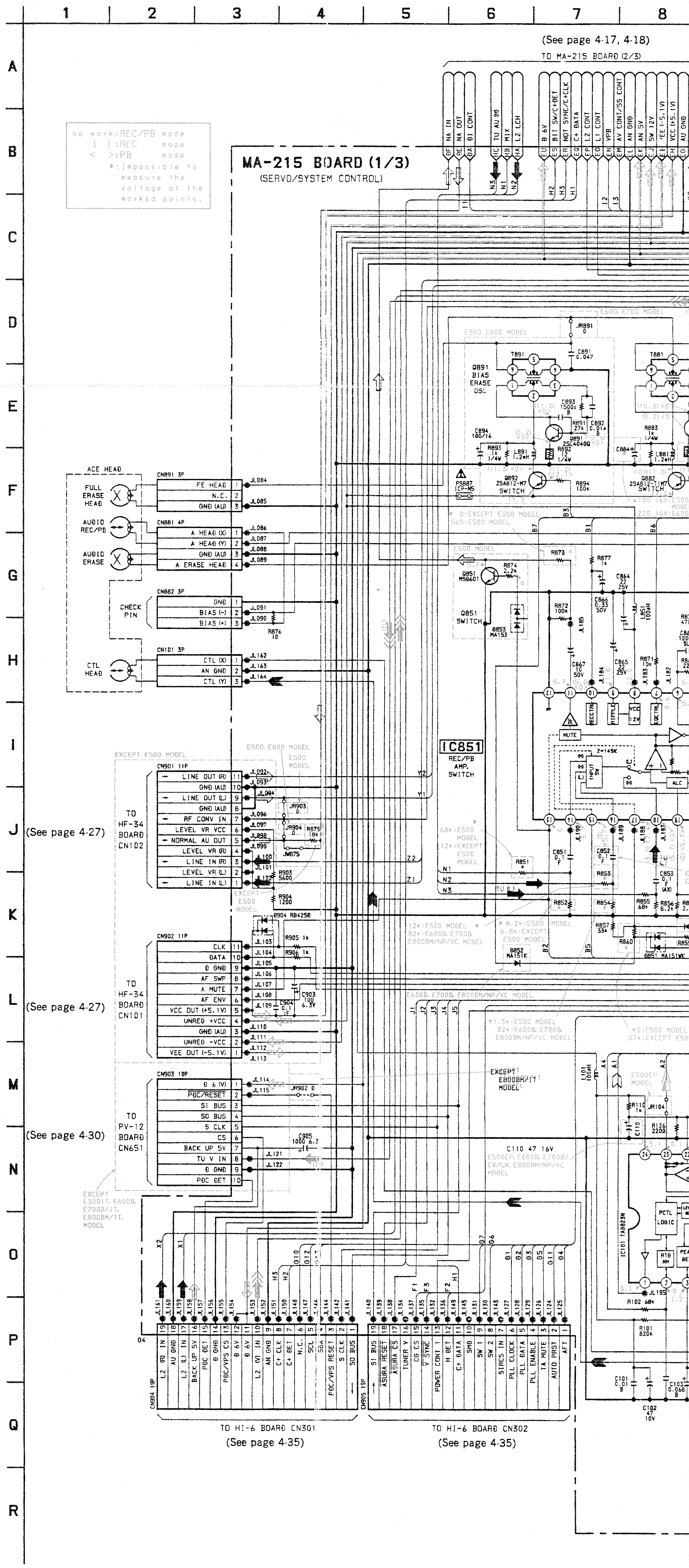
MA-215 BOARD	
CN051	L-3
CN071	N-2
CN101	L-18
CN501	F-17
CN502	E-17
CN701	A-6
CN702	A-8
CN881	G-16
CN882	H-16
CN891	G-17
CN901	G-20
CN902	H-20
CN903	L-20
CN904	O-19
CN905	O-17
CN907	C-6
CN908	C-11
CN909	H-2
CN910	L-1
CN912	E-11
D001	K-8
D006	O-8
D007	N-6
D071	G-8
D206	L-10
D251	L-9
D252	K-9
D253	L-10
D401	F-5
D402	F-5
D501	B-15
D502	B-15
D503	B-14
D504	B-14
D505	B-15
D506	B-16
D507	A-18
D508	B-18
D509	B-18
D510	B-18
D511	B-18
D512	C-19
D513	C-19
D514	C-19
D515	C-19
D516	F-18
D517	B-15
D518	B-15
D519	B-15
D520	B-14
D702	C-4
D708	C-11
D709	C-2
D710	C-2
D851	H-13
D852	H-13
D853	F-15
D854	H-13
D901	C-10
D902	N-3
D903	K-14
D904	J-19
IC002	N-7
IC071	H-9
IC101	J-17
IC201	K-11
IC251	K-9
IC351	J-10
IC401	F-5
IC402	G-6
IC501	F-13
IC502	D-17
IC503	D-18
IC851	H-15
Q001	J-1
Q002	J-14
Q003	M-3
Q351	H-11
Q353	I-12
Q354	I-12
Q401	G-6
Q402	G-6
Q404	E-6
Q405	F-5
Q406	G-4
Q407	G-5
Q408	H-5
Q501	C-14
Q502	C-15
Q702	B-8
Q703	C-5
Q704	B-11
Q707	C-2
Q709	B-9
Q710	C-12
Q711	C-12
Q712	C-11
Q713	C-11
Q851	F-15
Q881	H-17
Q882	I-15
Q889	I-16
Q891	G-17
Q892	I-15


HF-34 (EXCEPT E500) (AUDIEO PROCESS)
MA-215 (SERVO/SYSTEM CONTROL, INPUT/OUTPUT, TUNER)
CP-67 (E500, E600B, E700B/EX/UX, E800BM/NP/VC) (CANAL+, INPUT/OUTPUT)
PV-12 (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT) (PDC CONTROL)
RV-37 (REC/PB AMP)
ACE HEAD
PS-328 (POWER)
DRUM MOTOR (M901)
CAPSTAN MOTOR (M902)
HI-6 (TIMER/TUNER/MODE CONTROL, FLD)
CAM MOTOR (M903)
MF-254 (LED CONTROL)
DC-58 (RELAY)

MA-215 (SERVO/SYSTEM CONTROL), DC-58 (RELAY) SCHEMATIC DIAGRAM

— Ref. No. MA-215 BOARD : 1,000 series, DC-58 BOARD : 4,000 series —



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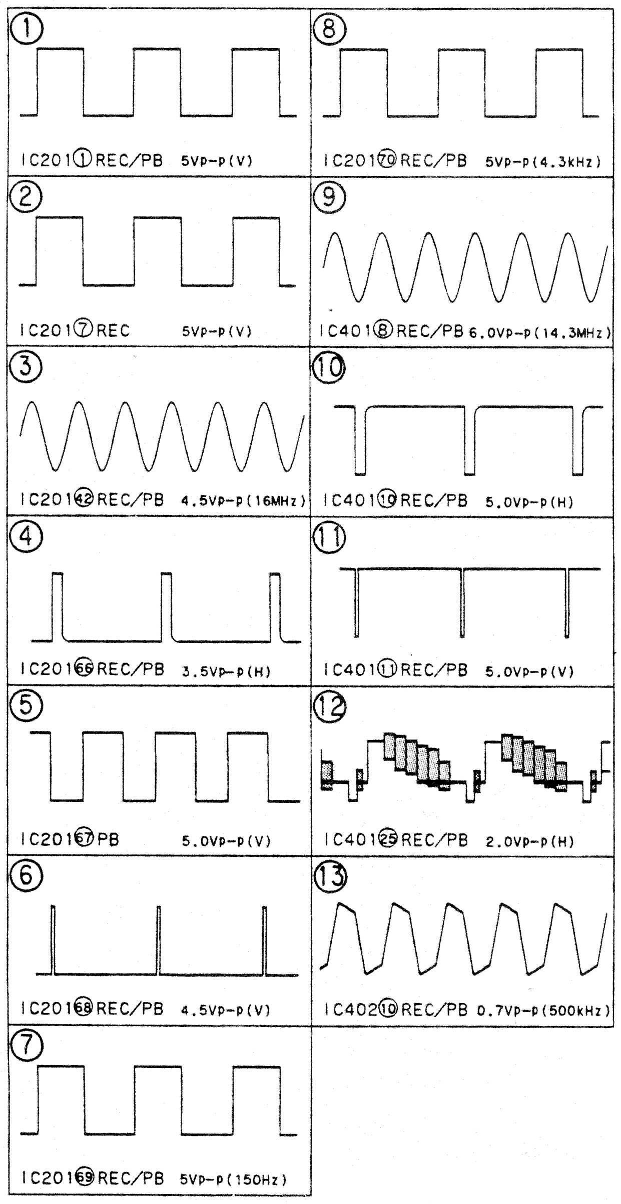
P
Q
R
(See page 4-17, 4-18)
TO MA-215 BOARD (2/3)
no mark:REC/PB mode
( ):REC mode
< >:PB mode
*:Impossible to measure the voltage at the marked points.
MA-215 BOARD (1/3)
(SERVO/SYSTEM CONTROL)
ACE HEAD
FULL ERASE HEAD
AUDIO REC/PB
AUDIO ERASE
CHECK PIN
CTL HEAD
CN891 3P
FE HEAD
N.C.
GND (AU)
CN881 4P
A HEAD (X)
A HEAD (Y)
GND (AU)
A ERASE HEAD
CN882 3P
GND
BIAS (-)
BIAS (+)
CN101 3P
CTL (X)
AN GND
CTL (Y)
E500 MODEL
E500, E800 MODEL
E600, E700 MODEL
Q891 BIAS ERASE OSC
Q851 SWITCH
IC851 REC/PB AMP, SWITCH
MUTE
ALC
EXCEPT E500 MODEL
CN901 11P
LINE OUT (R)
GND (AU)
LINE OUT (L)
GND (AU)
RF CONV IN
LEVEL VR VCC
NORMAL AU OUT
LEVEL VR (R)
LINE IN (R)
LEVEL VR (L)
LINE IN (L)
TO HF-34 BOARD CN102
(See page 4-27)
CN902 11P
CLK
DATA
D GND
AF SWP
A MUTE
AF ENV
VCC OUT (+5.1V)
UNREG +VCC
GND (AU)
UNREG -VCC
VEE OUT (-5.1V)
TO HF-34 BOARD CN101
(See page 4-27)
CN903 10P
D 6 (V)
PDC/RESET
SI BUS
SO BUS
S CLK
CS
BACK UP 5V
TU V IN
D GND
PDC DET
TO PV-12 BOARD CN651
(See page 4-30)
EXCEPT E500IT, E600B, E700B/IT, E800BM/IT, MODEL
CN904 19P
CN905 19P
L2 (R) IN
AU GND
L2 (L) IN
BACK UP 5V
PDC DET
D GND
PDC/VPS CS
D 6V
L2 (V) IN
AN GND
C+ CLK
C+ DET
N.C.
SCL
SDA
PDC/VPS RESET
S CLK
SO BUS
SI BUS
ASURA RESET
ASURA CS
TUNER V
CG CS
V SYNC
POWER CONT 1
H DET
C+ DATA
SMO
SW 1
SW 2
SIRCS IN
PLL CLOCK
PLL DATA
PLL ENABLE
TA MUTE
AUTO PRST
AFT
TO HI-6 BOARD CN301
(See page 4-35)
TO HI-6 BOARD CN302
(See page 4-35)
IC101 TA8823N
PCTL LOGIC
C110 47 16V

MA-215 BOARD



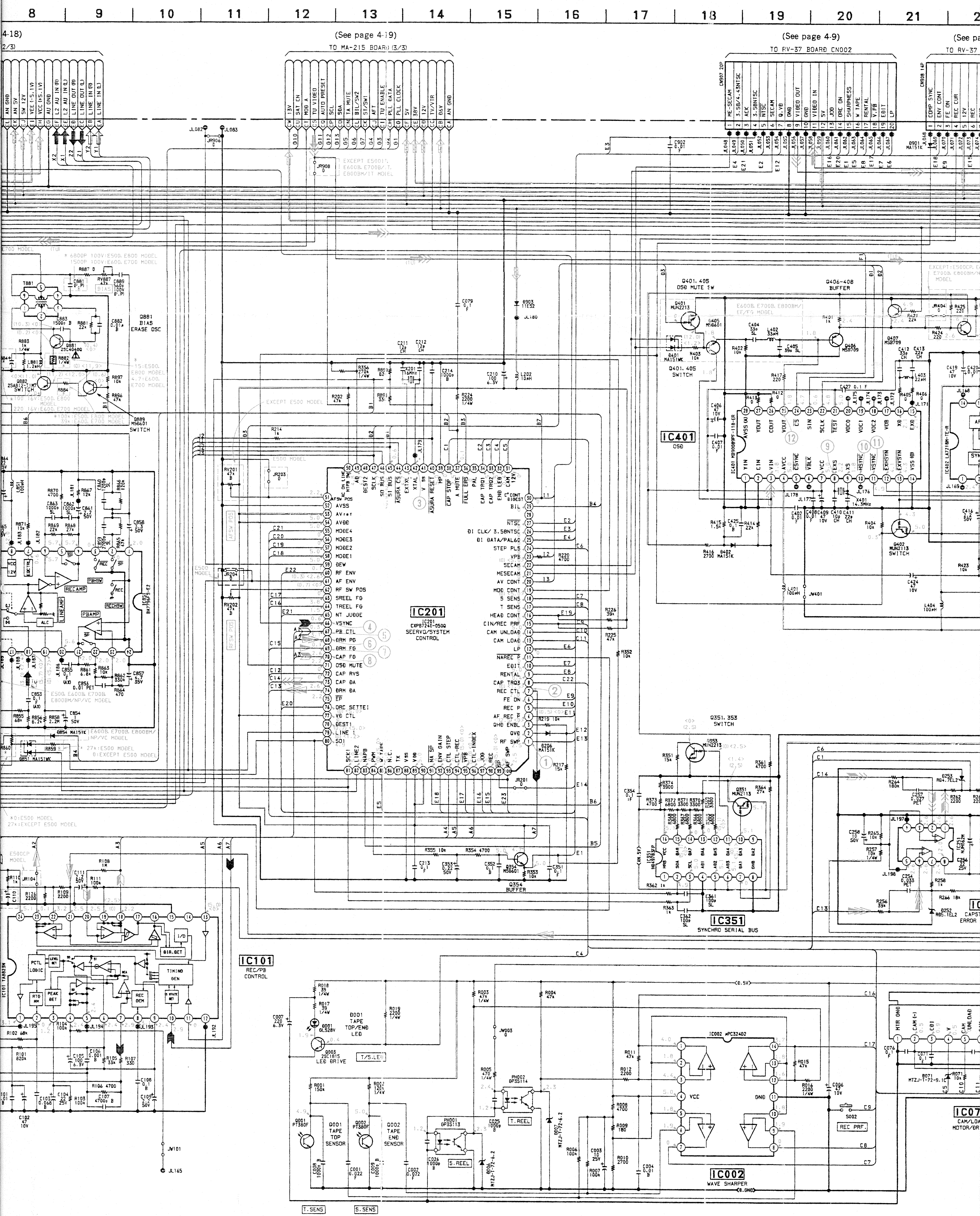
①
IC201①REC/PB 5Vp-p(V)
②
IC201⑦REC 5Vp-p(V)
③
IC201㊷REC/PB 4.5Vp-p(16MHz)
④
IC201(66)REC/PB 3.5Vp-p(H)
⑤
IC201(67)PB 5.0Vp-p(V)
⑥
IC201(68)REC/PB 4.5Vp-p(V)
⑦
IC201(69)REC/PB 5Vp-p(150Hz)
⑧
IC201(70)REC/PB 5Vp-p(4.3kHz)
⑨
IC401⑧REC/PB 6.0Vp-p(14.3MHz)
⑩
IC401⑩REC/PB 5.0Vp-p(H)
⑪
IC401⑪REC/PB 5.0Vp-p(V)
⑫
IC401㉕REC/PB 2.0Vp-p(H)
⑬
IC402⑩REC/PB 0.7Vp-p(500kHz)

- **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡≫	➡
PB			⇨≫	⇨

- **Signal path**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo(speed and phase)		▷▷▷	
Capstan speed servo		▷	
Capstan phase servo			
Capstan servo(speed and phase)		▷»	
Ref.signal	▶		▷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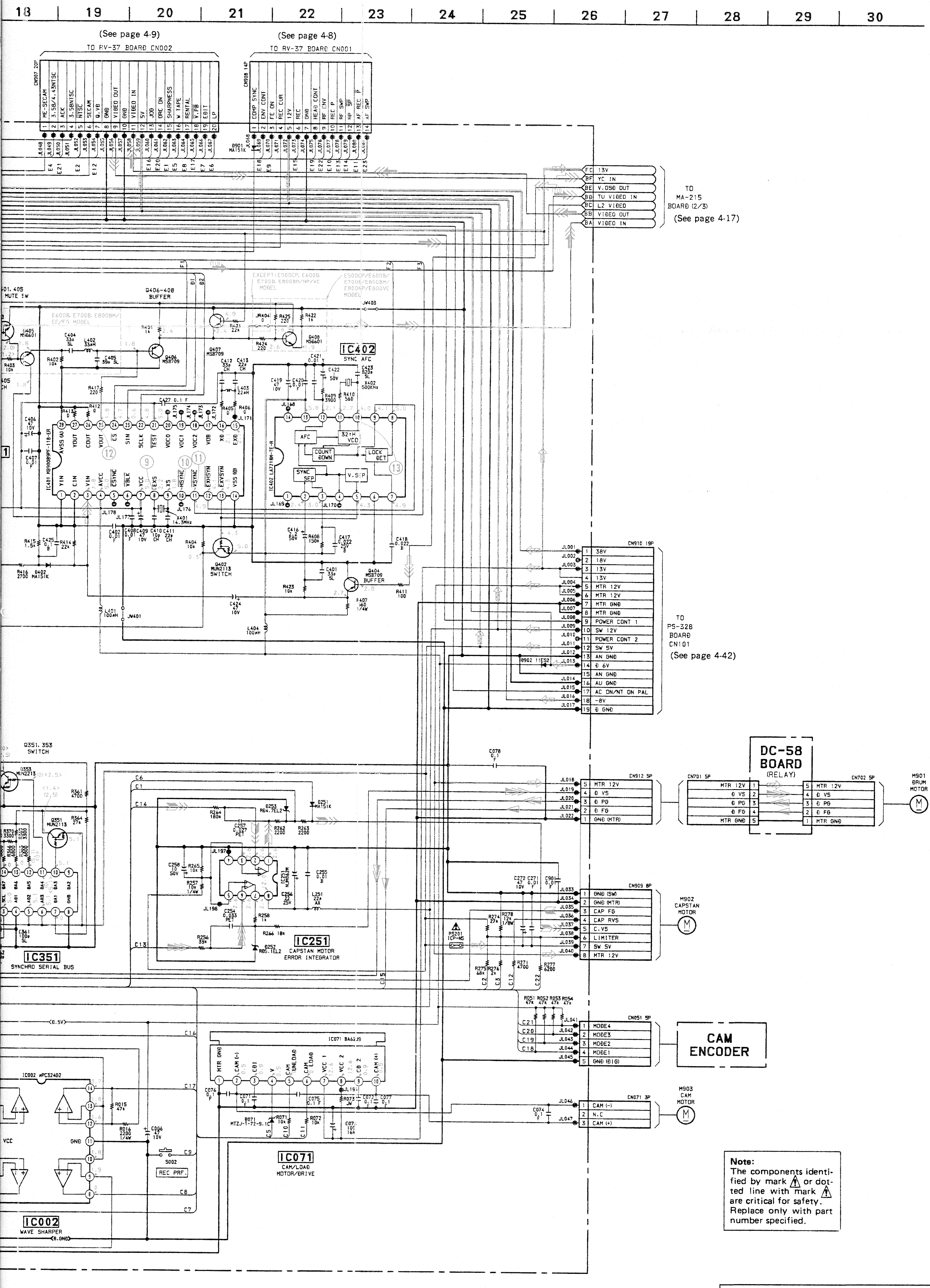
(See page 4-19)
TO MA-215 BOARD (3/3)
(See page 4-9)
TO RV-37 BOARD CN002
Q881 BIAS ERASE OSC
Q882 2SA812-T1M7 SWITCH
Q889 MS6601 SWITCH
Q401, 405 OSD MUTE SW
Q406-408 BUFFER
Q401, 405 SWITCH
Q402 MUN2113 SWITCH
IC401 OSD
IC401 MB90089PF-118-ER
IC201
IC201 CXP87240-050Q SERVO/SYSTEM CONTROL
Q351, 353 SWITCH
IC351 SYNCHRO SERIAL BUS
Q354 BUFFER
IC101 REC/PB CONTROL
IC101 TA8823N
D001 TAPE TOP/END LED
Q003 2SC1815 LED DRIVE
Q001 TAPE TOP SENSOR
Q002 TAPE END SENSOR
T.REEL
S.REEL
T.SENS
S.SENS
IC002 µPC32402
IC002 WAVE SHARPER
S002 REC PRF.
EXCEPT E500 MODEL
E500 MODEL
E700 MODEL
TIMING GEN
REC AMP
PB AMP
LINE AMP
ALC
VCC
GND
CAPS ERROR
CAM/LOAD MOTOR/BR



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(See page 4-9)
TO RV-37 BOARD CN002
CN907 20P
ME-SECAM
3.58/4.43NTSC
ACK
3.58NTSC
NTSC
SECAM
Q.VB
GND
VIDEO OUT
GND
VIDEO IN
5V
JOG
DRC ON
SHARPNESS
W TAPE
RENTAL
V.PB
EDIT
LP
(See page 4-8)
TO RV-37 BOARD CN001
CN908 14P
COMP SYNC
ENV CONT
FE ON
REC CUR
12V
REC
GND
HEAD CONT
RF ENV
REC P
RF SWP
HP SP
AF REC P
AF SWP
D901 MA151K
13V
YC IN
V.OSD OUT
TU VIDEO IN
L2 VIDEO
VIDEO OUT
VIDEO IN
TO MA-215 BOARD (2/3)
(See page 4-17)
EXCEPT:E500CP, E600B, E700B, E800BM/NP/VC MODEL
E500CP/E600B/E700B/E800BM/E800NP/E800VC MODEL
Q401, 405 MUTE SW
Q406-408 BUFFER
E600B, E700B, E800BM/EF/FG MODEL
IC402
SYNC AFC
AFC
32fH VCO
COUNT DOWN
LOCK DET
SYNC SEP
V.SEP
IC402 LA7218M-TE-R
IC401 MB90089PF-118-ER
Q402 MUN2113 SWITCH
Q404 MSB709 BUFFER
CN910 19P
38V
18V
13V
13V
MTR 12V
MTR 12V
MTR GND
MTR GND
POWER CONT 1
SW 12V
POWER CONT 2
SW 5V
AN GND
D 6V
AN GND
AU GND
AC ON/NT ON PAL
-8V
D GND
TO PS-328 BOARD CN101
(See page 4-42)
Q351, 353 SWITCH
DC-58 BOARD
(RELAY)
CN912 5P
MTR 12V
D VS
D PG
D FG
GND (MTR)
CN701 5P
MTR 12V
D VS
D PG
D FG
MTR GND
CN702 5P
MTR 12V
D VS
D PG
D FG
MTR GND
M901 DRUM MOTOR
IC251 NJM062M
IC251
CAPSTAN MOTOR ERROR INTEGRATOR
CN909 8P
GND (SW)
GND (MTR)
CAP FG
CAP RVS
C.VS
LIMITER
SW 5V
MTR 12V
M902 CAPSTAN MOTOR
PS201 ICP-N5
IC351
SYNCHRO SERIAL BUS
CN051 5P
MODE4
MODE3
MODE2
MODE1
GND (DIG)
CAM ENCODER
IC071 BA6239
MTR GND
CAM (-)
CB1
V
CAM UNLOAD
CAM LOAD
VCC 1
VCC 2
CB 2
CAM (+)
IC071
CAM/LOAD MOTOR/DRIVE
CN071 3P
CAM (-)
N.C
CAM (+)
M903 CAM MOTOR
IC002 µPC324G2
IC002
WAVE SHARPER
S002
REC PRF.

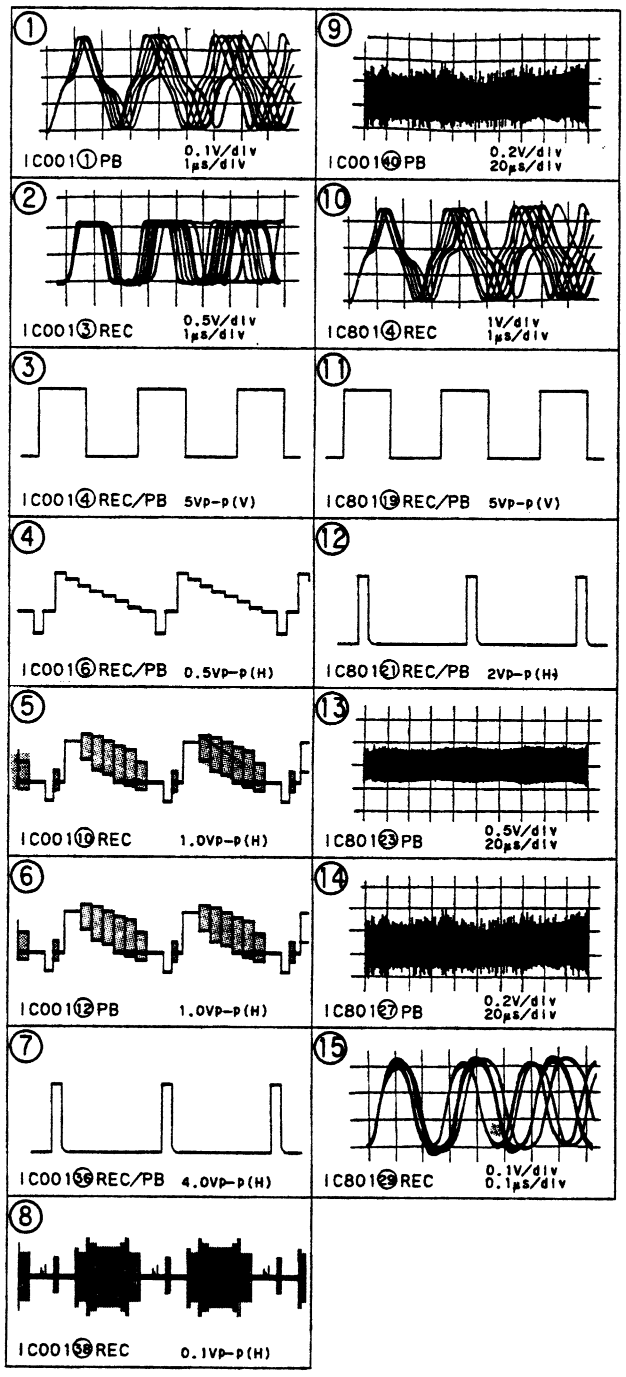
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SERVO/SYSCON, RELAY

RV-37 (Y/C VIDEO PROCESS, HiFi AUDIO, HEAD AMP) SCHEMATIC DIAGRAM

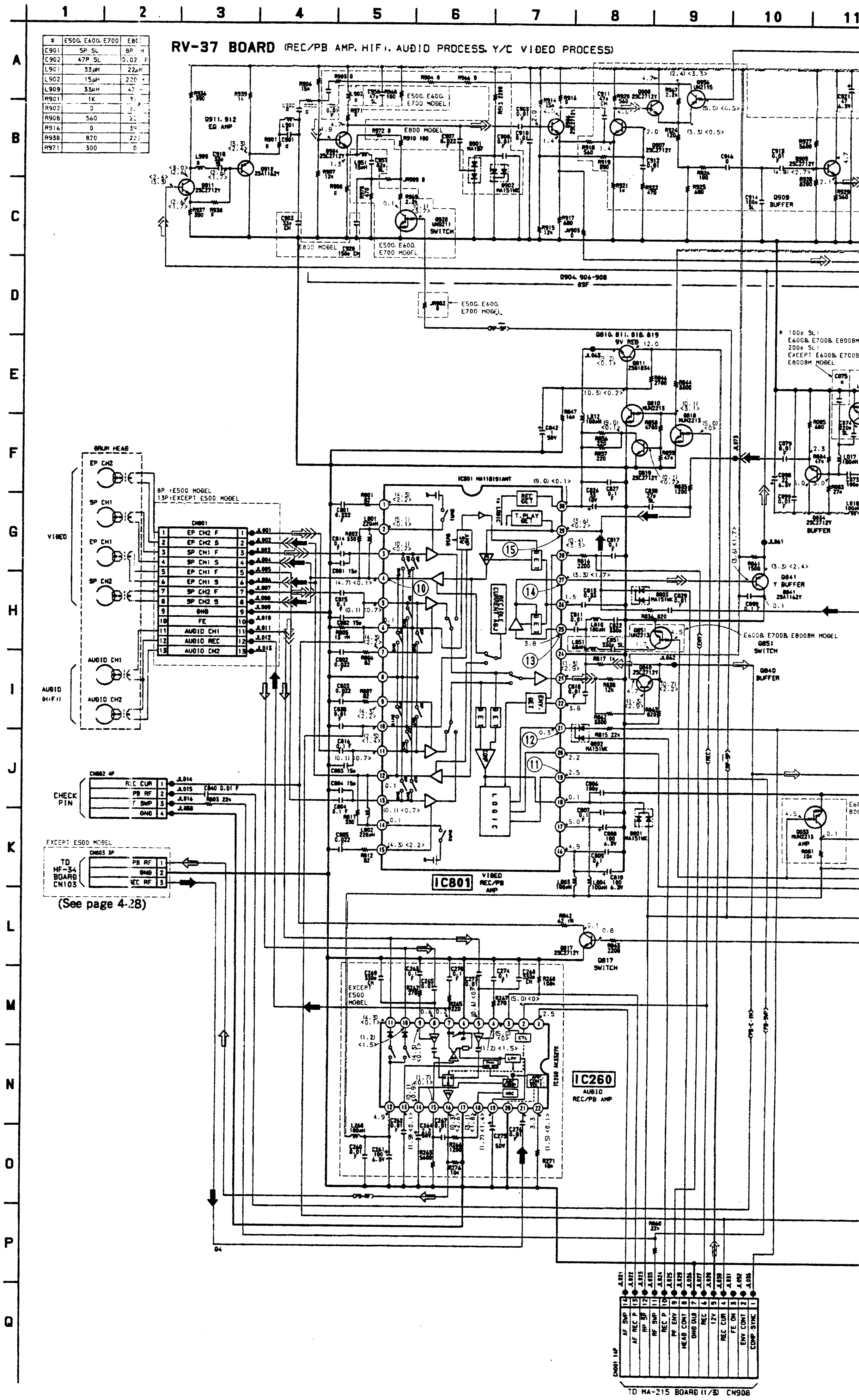
— Ref. No. RV-37 BOARD : 2,000 series —

RV-37 BOARD



- **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡〉	➡〉〉	➡
PB	⇨	⇨〉	⇨〉〉	⇨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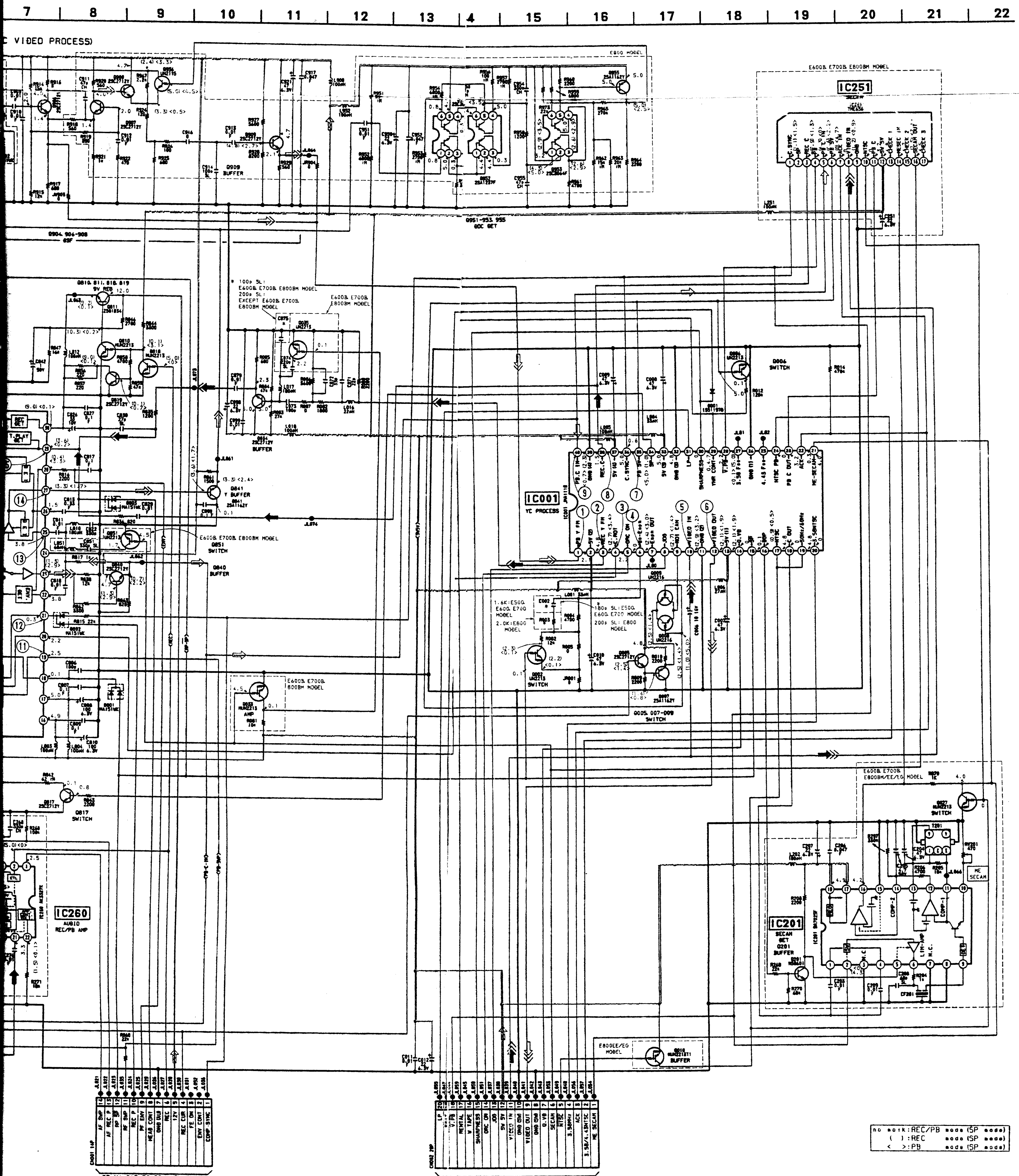
P
Q
RV-37 BOARD (REC/PB AMP, HIFI AUDIO PROCESS, Y/C VIDEO PROCESS)
Q911, 912 EQ AMP
Q928 SWITCH
Q909 BUFFER
DRUM HEAD
EP CH2
SP CH1
EP CH1
SP CH2
VIDEO
AUDIO CH1
AUDIO CH2
AUDIO (HiFi)
CN801
EP CH2 F
EP CH2 S
SP CH1 F
SP CH1 S
EP CH1 F
EP CH1 S
SP CH2 F
SP CH2 S
GND
FE
AUDIO CH1
AUDIO REC
AUDIO CH2
CHECK PIN
CN802 4P
REC CUR
PB RF
F SWP
GND
EXCEPT E500 MODEL
CN803 3P
TO HF-34 BOARD CN103
PB RF
GND
REC RF
(See page 4-28)
IC801 VIDEO REC/PB AMP
LOGIC
Q851 SWITCH
Q840 BUFFER
Q841 Y BUFFER
Q853 AMP
Q817 SWITCH
Q810, 811, 818, 819
IC260 AUDIO REC/PB AMP
CN001 14P
AF SWP
AF REC P
RF SWP
REC P
PB
RF ENV
HEAD CONT
GND
REC CUR
12V
FE ON
ENV CONT
COMP SYNC
TO MA-215 BOARD (1/3) CN908

(See page 4-15)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VIDEO PROCESS)
E800 MODEL
Q909 BUFFER
Q951-953, 955
SOC SET
Q904, 906-908
OSF
Q810, 811, 816, 819
9V REG
Q851 SWITCH
Q840 BUFFER
Q841 Y BUFFER
Q861 BUFFER
E600B, E700B, E800BM MODEL
IC001
YC PROCESS
PB.C IN
GND (4)
REC.C
5V (4)
C.SYNC
PB 5V
SP
5V (3)
GND (3)
LP
SHARPNESS
YNR CONT
V.PB
3.58 Fsc
GND (1)
4.43 Fsc
NTSC PB
PB C OUT
ACK
ME-SECAM
PB Y FM
5V (2)
REC Y FM
C.ROT
ORC ON
Esen
Esen OUT
JOG
ROT CAN
VIDEO IN
GND (2)
VIDEO OUT
5V (1)
Q.VB
SP
DOP
NTSC
C OUT
50Hz/60Hz
3.58NTSC
Q006 SWITCH
Q002 SWITCH
Q005, 007-009 SWITCH
IC251
SECAM
TM8656
C.SYNC
REC C
PB C IN
PB 5V
ACK IN
VIDEO IN
GND
NTSC
PB C
5V
CHECK 1
MESEC IN
CHECK 2
SECAM OUT
CHECK 3
E600B, E700B, E800BM/EE/EG MODEL
Q827 SWITCH
ME SECAM
IC201
SECAM SET
Q201 BUFFER
COMP-2
COMP-1
Q817 SWITCH
IC260
AUDIO
REC/PB AMP
E800EE/EG MODEL
Q818 BUFFER
Q861 AMP
AF SWP
AF REC P
RF SWP
REC P
PF ENV
HEAD CONT
GND (AU)
REC
12V
REC CUR
FE ON
ENV CONT
COMP.SYNC
CN001 14P
TO MA-215 BOARD (1/3) CN908
LP
V.PB
MENTAL
V TAPE
SHARPNESS
ORC ON
JOG
5V 5V
VIDEO IN
GND (SM)
VIDEO OUT
GND (SM)
Q.VB
SECAM
NTSC
3.58MHz
ACK
3.58/4.43NTSC
ME SECAM
CN002 20P
TO MA-215 BOARD (1/3) CN907
no mark: REC/PB mode (SP mode)
( ): REC mode (SP mode)
< >: PB mode (SP mode)

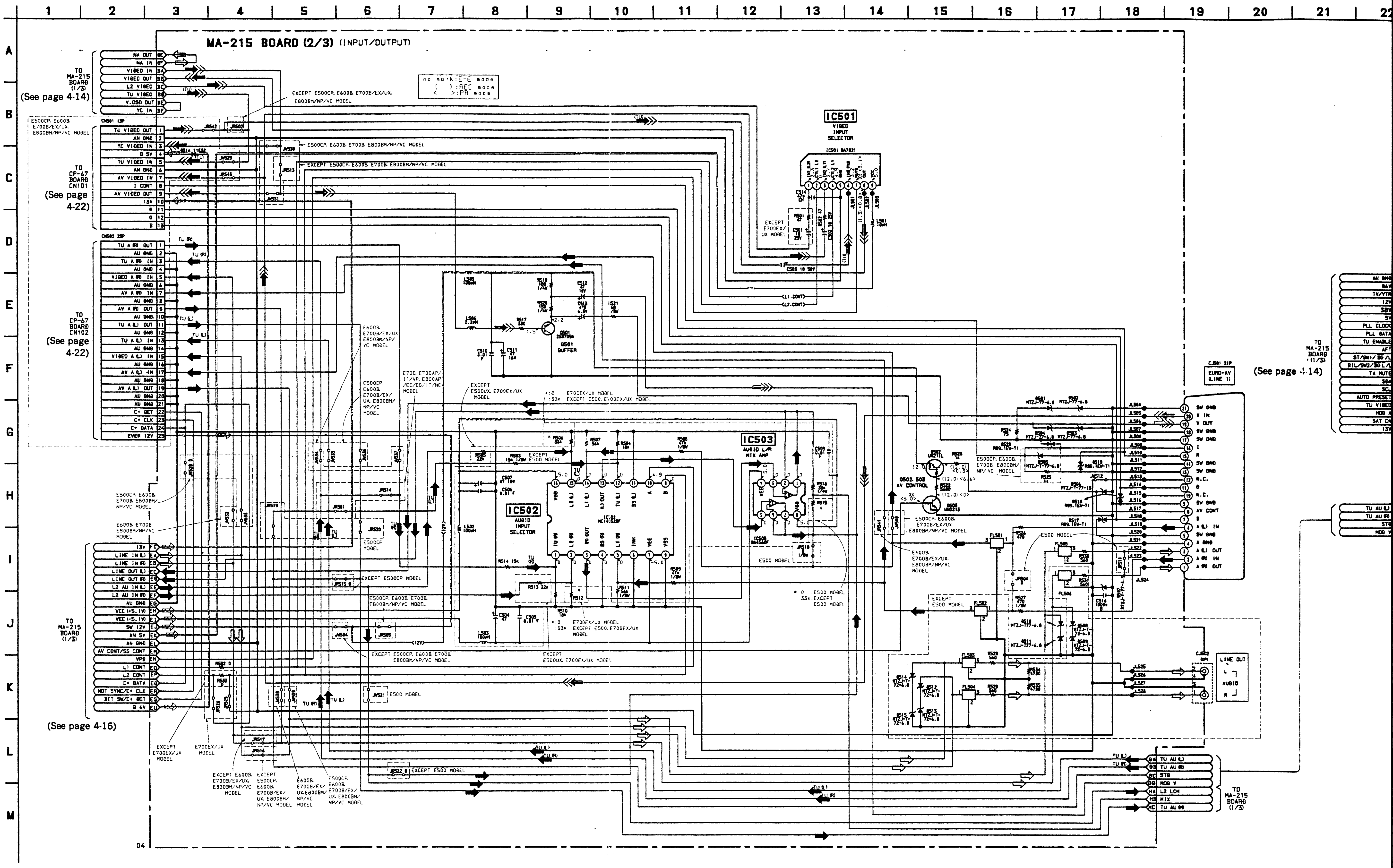
(See page 4-15)

(See page 4-15)

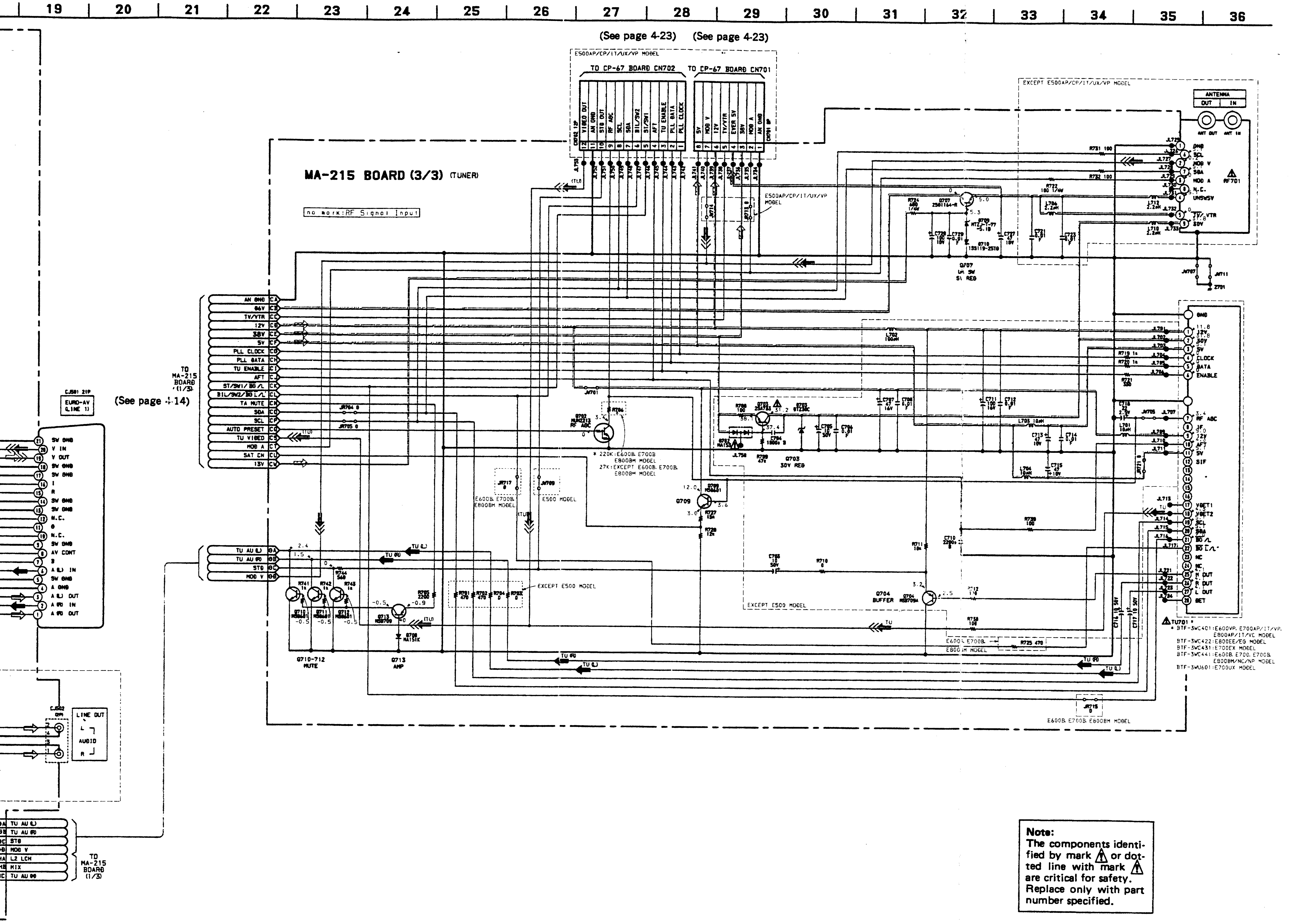
MA-215 (INPUT/OUTPUT, TUNER) SCHEMATIC DIAGRAM

— Ref. No. MA-215 BOARD : 1,000 series —

- **Refer to page 4-10 for Printed Wiring Board.**



MA-215 BOARD (2/3) (INPUT/OUTPUT)
no mark : E-E mode
( ) : REC mode
< > : PB mode
TO MA-215 BOARD (1/3) (See page 4-14)
TO CP-67 BOARD CN101 (See page 4-22)
TO CP-67 BOARD CN102 (See page 4-22)
TO MA-215 BOARD (1/3) (See page 4-16)
TO MA-215 BOARD (1/3) (See page 4-14)
TO MA-215 BOARD (1/3)
CN501 13P
CN502 25P
CJ501 21P EURO-AV (LINE 1)
IC501 VIDEO INPUT SELECTOR
IC502 AUDIO INPUT SELECTOR
IC503 AUDIO L/R MIX AMP
Q501 BUFFER
Q502, 503 AV CONTROL
CJ502 LINE OUT L AUDIO R
MA OUT
MA IN
VIDEO IN
VIDEO OUT
L2 VIDEO
TU VIDEO
V.OSD OUT
YC IN
TU VIDEO OUT
AN GND
YC VIDEO IN
D 5V
TU VIDEO IN
AV VIDEO IN
I CONT
AV VIDEO OUT
13V
R
G
B
TU A (R) OUT
AU GND
TU A (R) IN
VIDEO A (R) IN
AV A (R) IN
AV A (R) OUT
TU A (L) OUT
TU A (L) IN
VIDEO A (L) IN
AV A (L) IN
AV A (L) OUT
C+ SET
C+ CLK
C+ DATA
EVER 12V
LINE IN (L)
LINE IN (R)
LINE OUT (L)
LINE OUT (R)
L2 AU IN (L)
L2 AU IN (R)
VCC (+5.1V)
VEE (-5.1V)
SW 12V
AN 5V
AV CONT/S5 CONT
VPB
L1 CONT
L2 CONT
C+ DATA
NOT SYNC/C+ CLK
BIT SW/C+ SET
D 4V
TU AU (L)
TU AU (R)
STB
MOD V
L2 LCH
MIX
TU AU 00
EXCEPT E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
E500 MODEL
EXCEPT E500 MODEL


19
20
21
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26
27
28
29
30
31
32
33
34
35
36
(See page 4-23)
(See page 4-23)
E500AP/CP/IT/UX/VP MODEL
TO CP-67 BOARD CN702
TO CP-67 BOARD CN701
MA-215 BOARD (3/3) (TUNER)
no mark:RF Signal Input
EXCEPT E500AP/CP/IT/UX/VP MODEL
ANTENNA
OUT
IN
RF701
TO MA-215 BOARD (1/3)
(See page 4-14)
CJ501 21P
EURO-AV (LINE 1)
AN GND
B6V
TV/VTR
12V
33V
5V
PLL CLOCK
PLL DATA
TU ENABLE
AFT
ST/SW1/BG/L
BIL/SW2/BG L/L'
TA MUTE
SDA
SCL
AUTO PRESET
TU VIDEO
MOD A
SAT CH
13V
TU AU (L)
TU AU (R)
STB
MOD V
Q702 RF AGC
Q703 30V REG
Q707 5V REG
Q709
Q704 BUFFER
Q710-712 MUTE
Q713 AMP
EXCEPT E500 MODEL
E500 MODEL
CJ502
LINE OUT
AUDIO
L
R
TO MA-215 BOARD (1/3)
TU701
L2 LCH
MIX

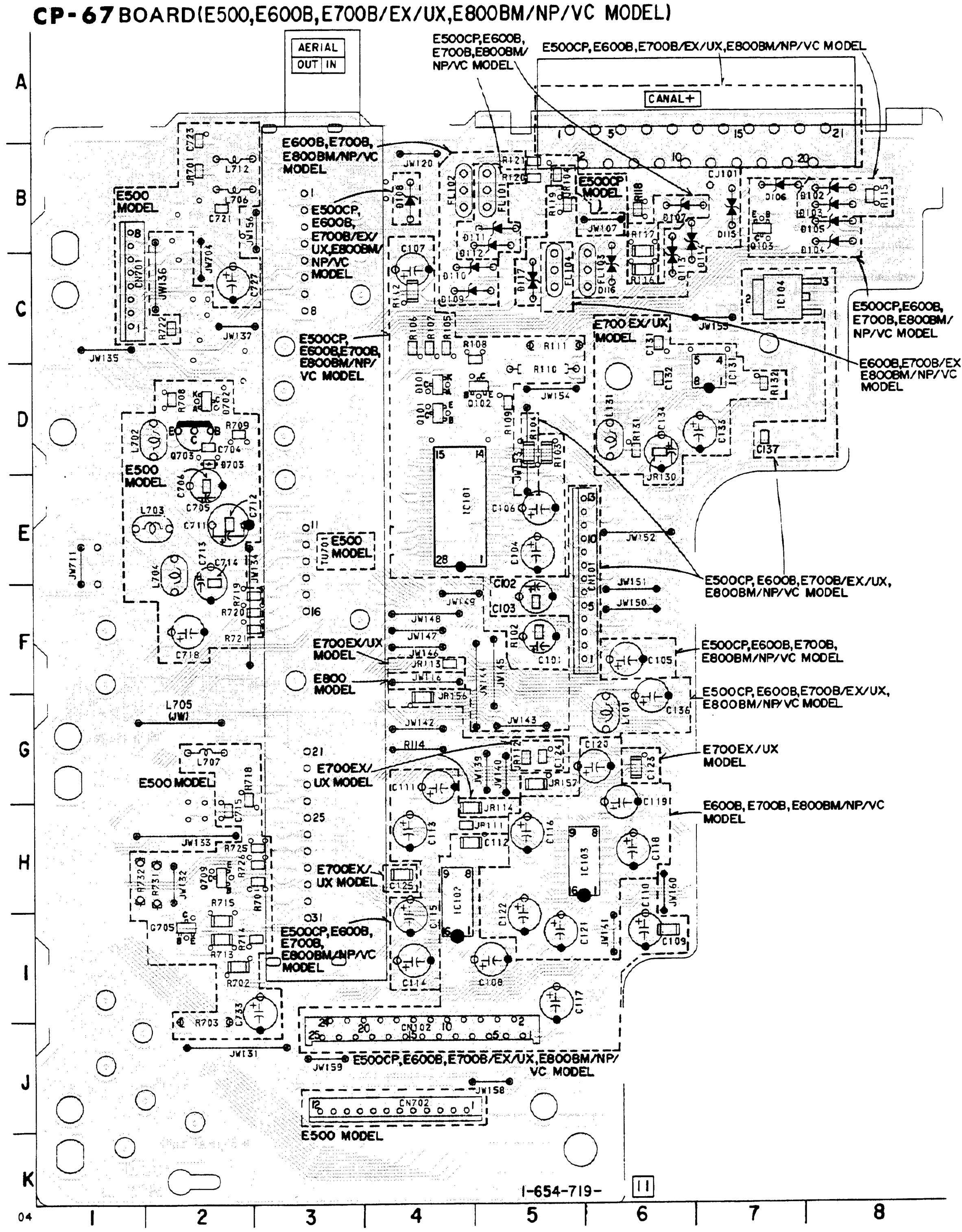
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

• Signal path

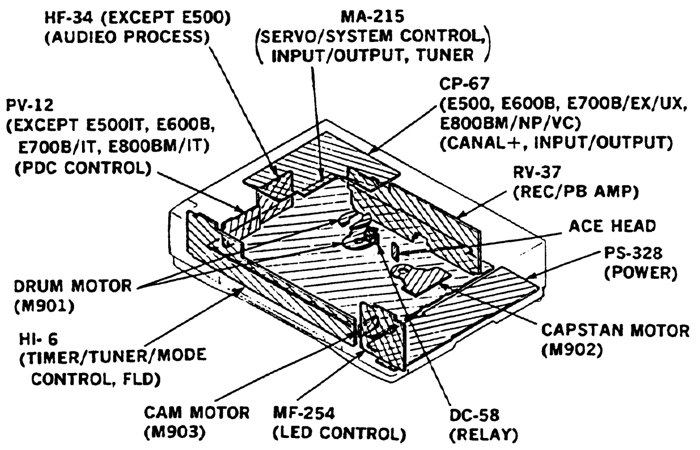
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡≫	➡
PB			⇨≫	⇨

CP-67 (CANAL+, TUNER) PRINTED WIRING BOARD

— Ref. No. CP-67 BOARD : 5,000 series —

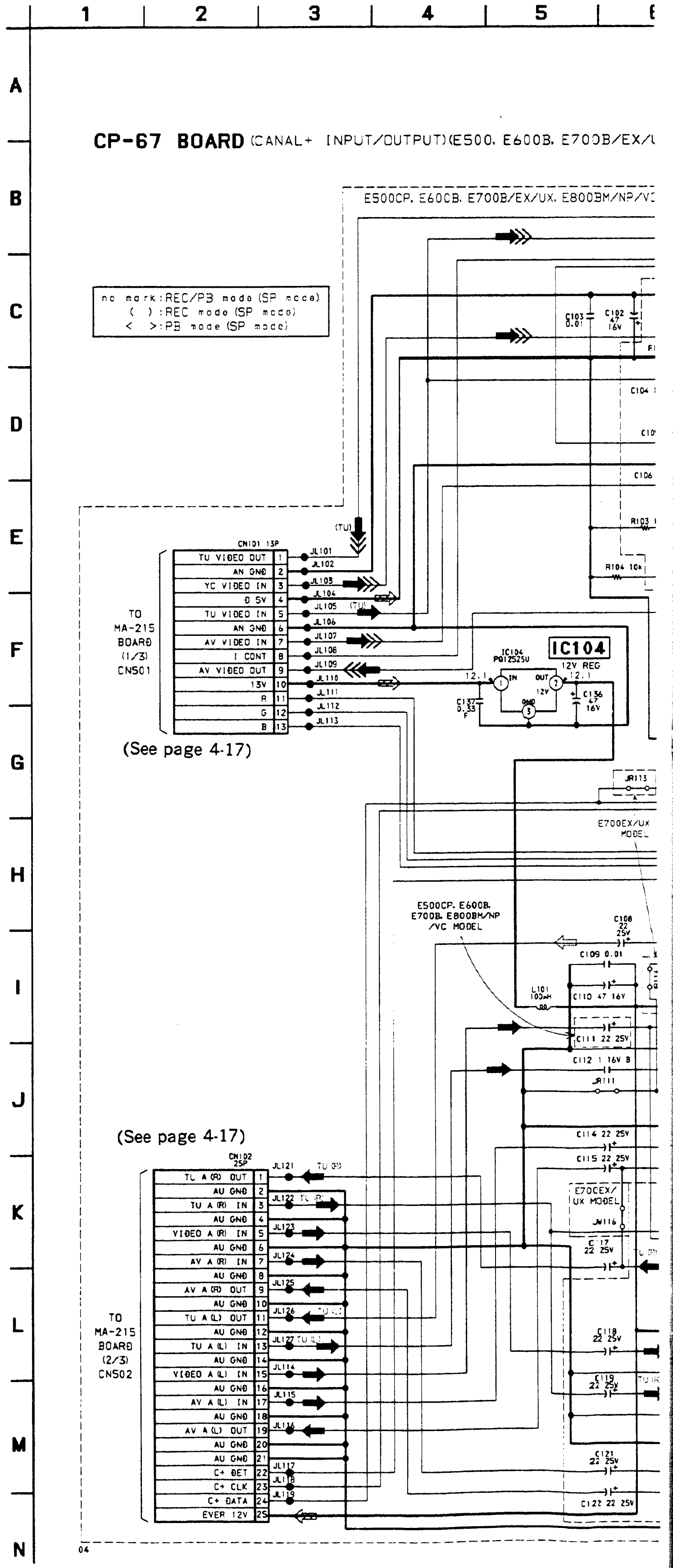

CP-67 BOARD(E500,E600B,E700B/EX/UX,E800BM/NP/VC MODEL)
AERIAL
OUT IN
E500CP,E600B,
E700B,E800BM/
NP/VC MODEL
E500CP,E600B,E700B/EX/UX,E800BM/NP/VC MODEL
CANAL+
E600B,E700B,
E800BM/NP/VC
MODEL
E500
MODEL
E500CP,
E600B,
E700B/EX/
UX,E800BM/
NP/VC
MODEL
E500CP,E600B,
E700B,E800BM/
NP/VC MODEL
E700 EX/UX
MODEL
E600B,E700B/EX/UX,
E800BM/NP/VC
MODEL
E500CP,
E600B,E700B,
E800BM/NP/
VC MODEL
E500
MODEL
E500CP,E600B,E700B/EX/UX,
E800BM/NP/VC MODEL
E700EX/UX
MODEL
E800
MODEL
E500CP,E600B,E700B,
E800BM/NP/VC MODEL
E500CP,E600B,E700B/EX/UX,
E800BM/NP/VC MODEL
L705
(JW)
E500 MODEL
E700EX/
UX MODEL
E700EX/UX
MODEL
E600B, E700B,E800BM/NP/VC
MODEL
E700EX/
UX MODEL
E500CP,E600B,
E700B,
E800BM/NP/VC
MODEL
E500CP,E600B,E700B/EX/UX,E800BM/NP/
VC MODEL
E500 MODEL
1-654-719-
11
A
B
C
D
E
F
G
H
I
J
K
04
1
2
3
4
5
6
7
8

CP-67 BOARD	
CN101	E-5
CN102	J-4
CN701	C-2
CN702	J-4
D101	D-4
D102	B-8
D103	B-8
D104	B-8
D105	B-8
D106	B-7
D107	B-7
D108	B-4
D109	C-4
D110	C-4
D111	B-4
D112	B-4
D113	C-6
D114	C-6
D115	B-7
D116	C-5
D117	C-5
D702	D-2
D703	D-2
IC101	E-4
IC102	H-4
IC103	H-5
IC104	C-7
IC131	D-6
Q101	D-4
Q102	D-5
Q103	B-7
Q703	D-2
Q705	I-2
Q709	H-2


HF-34 (EXCEPT E500)
(AUDIEO PROCESS)
MA-215
(SERVO/SYSTEM CONTROL,
INPUT/OUTPUT, TUNER)
PV-12
(EXCEPT E500IT, E600B,
E700B/IT, E800BM/IT)
(PDC CONTROL)
CP-67
(E500, E600B, E700B/EX/UX,
E800BM/NP/VC)
(CANAL+, INPUT/OUTPUT)
RV-37
(REC/PB AMP)
ACE HEAD
PS-328
(POWER)
DRUM MOTOR
(M901)
HI-6
(TIMER/TUNER/MODE
CONTROL, FLD)
CAPSTAN MOTOR
(M902)
CAM MOTOR
(M903)
MF-254
(LED CONTROL)
DC-58
(RELAY)

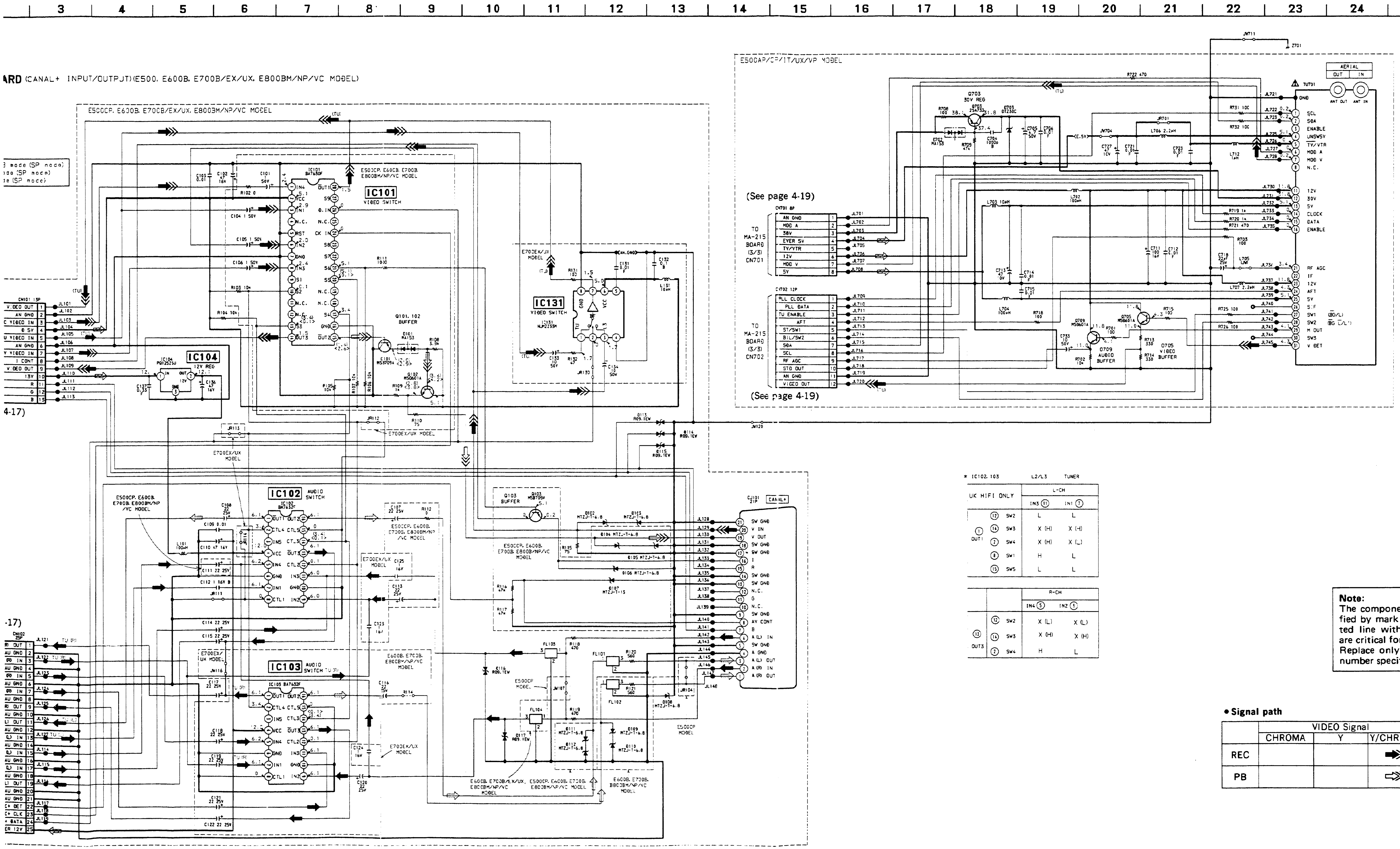
CP-67 (CANAL+, TUNER) SCHEMATIC DIAGRAM

— Ref. No. CP-67 BOARD : 5,000 series —


CP-67 BOARD (CANAL+ INPUT/OUTPUT)(E500, E600B, E700B/EX/
E500CP, E600B, E700B/EX/UX, E800BM/NP/V
no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)
IC104
12V REG
TO
MA-215
BOARD
(1/3)
CN501
(See page 4-17)
TU VIDEO OUT
AN GND
YC VIDEO IN
0 5V
TU VIDEO IN
AN GND
AV VIDEO IN
I CONT
AV VIDEO OUT
13V
R
G
B
E700EX/UX
MODEL
E500CP, E600B,
E700B, E800BM/NP
/VC MODEL
(See page 4-17)
TO
MA-215
BOARD
(2/3)
CN502
TU A (R) OUT
AU GND
TU A (R) IN
AU GND
VIDEO A (R) IN
AU GND
AV A (R) IN
AU GND
AV A (R) OUT
AU GND
TU A (L) OUT
AU GND
TU A (L) IN
AU GND
VIDEO A (L) IN
AU GND
AV A (L) IN
AU GND
AV A (L) OUT
AU GND
AU GND
C+ DET
C+ CLK
C+ DATA
EVER 12V
E700EX/
UX MODEL
1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
K
L
M
N
04

, TUNER) SCHEMATIC DIAGRAM

BOARD : 5,000 series —


3
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25
ARD (CANAL+ INPUT/OUTPUT)(E500, E600B, E700B/EX/UX, E800BM/NP/VC MODEL)
E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
IC101 VIDEO SWITCH
IC102 AUDIO SWITCH
IC103 AUDIO SWITCH
IC104 12V REG
IC131 VIDEO SWITCH
Q101, 102 BUFFER
Q103 BUFFER
E700EX/UX MODEL
E500CP, E600B, E700B, E800BM/NP/VC MODEL
E500AP/CP/IT/UX/VP MODEL
Q703 30V REG
Q705 VIDEO BUFFER
Q709 AUDIO BUFFER
AERIAL
OUT
IN
TU701
(See page 4-19)
TO MA-215 BOARD (3/3) CN701
TO MA-215 BOARD (3/3) CN702
(See page 4-19)
CN101 15P
CN102 25P
CJ101 21P
CANAL+
4-17)
-17)

* IC102, 103 L2/L3 TUNER

UK HIFI ONLY			L-CH	
			IN3 ⑪	IN1 ⑦
① OUT1	⑫	SW2	L	L
	⑭	SW3	X (H)	X (H)
	②	SW4	X (H)	X (L)
	⑧	SW1	H	L
	⑮	SW5	L	L

			R-CH	
			IN4 ⑤	IN2 ⑨
⑬ OUT3	⑫	SW2	X (L)	X (L)
	⑭	SW3	X (H)	X (H)
	②	SW4	H	L

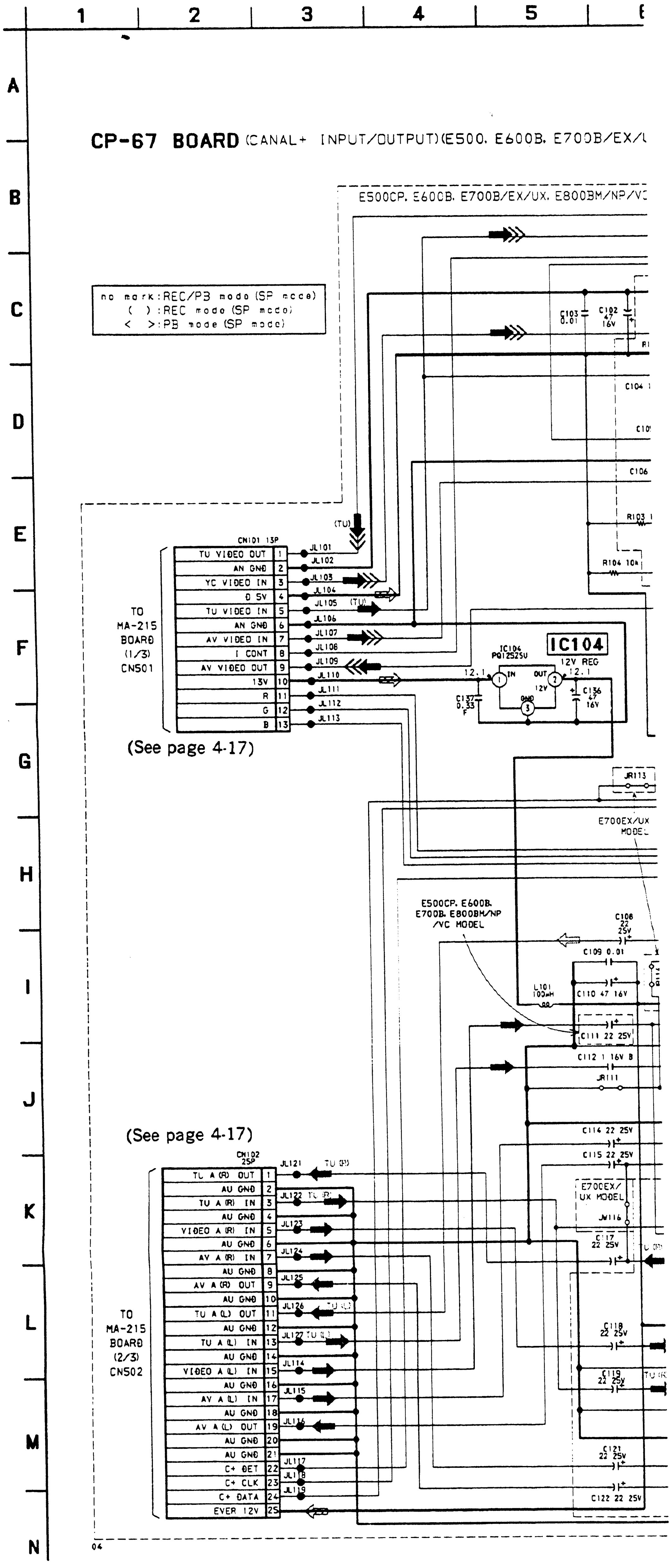
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡≫	➡
PB			⇨≫	⇨

CP-67 (CANAL+, TUNER) SCHEMATIC DIAGRAM

—Ref. No. CP-67 BOARD : 5,000 series—


1
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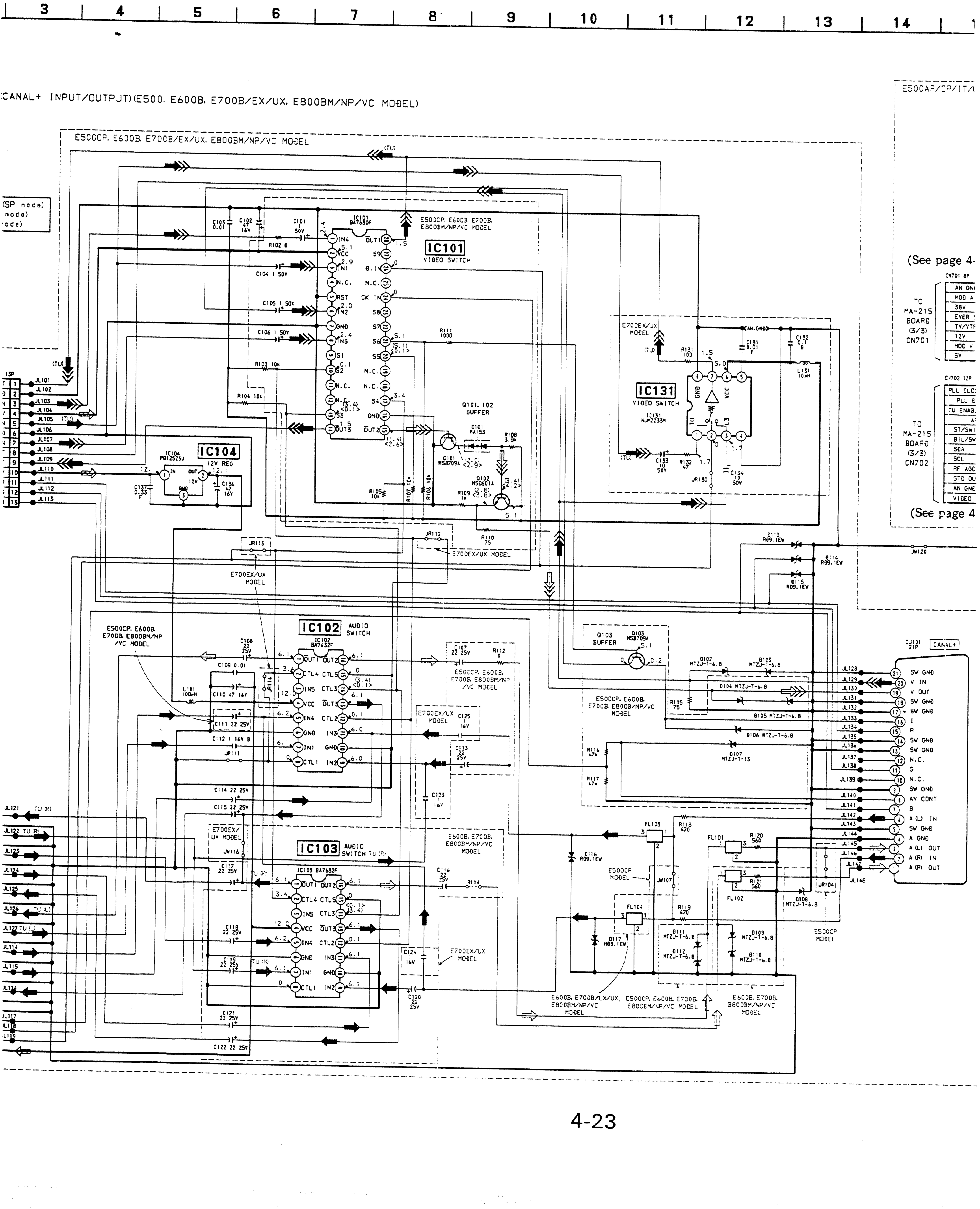
A
B
C
D
E
F
G
H
I
J
K
L
M
N
CP-67 BOARD (CANAL+ INPUT/OUTPUT)(E500. E600B. E700B/EX/
E500CP. E600B. E700B/EX/UX. E800BM/NP/V
no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)
C103 0.01
C102 47 16V
C104
C10
C106
R103
R104 10k
(TU)
CN101 13P
TU VIDEO OUT 1
AN GND 2
YC VIDEO IN 3
D 5V 4
TU VIDEO IN 5
AN GND 6
AV VIDEO IN 7
I CONT 8
AV VIDEO OUT 9
13V 10
R 11
G 12
B 13
JL101
JL102
JL103
JL104
JL105
JL106
JL107
JL108
JL109
JL110
JL111
JL112
JL113
TO MA-215 BOARD (1/3) CN501
(See page 4-17)
IC104
IC104 PQ12SZ5U
12V REG
12.1
IN
OUT
12V
GND
C137 0.33 F
C136 47 16V
JR113
E700EX/UX MODEL
E500CP. E600B. E700B. E800BM/NP /VC MODEL
C108 22 25V
C109 0.01
L101 100mH
C110 47 16V
C111 22 25V
C112 1 16V B
JR111
C114 22 25V
C115 22 25V
E700EX/ UX MODEL
JW116
C117 22 25V
C118 22 25V
C119 22 25V
C121 22 25V
C122 22 25V
(See page 4-17)
CN102 25P
TU A (R) OUT 1
AU GND 2
TU A (R) IN 3
AU GND 4
VIDEO A (R) IN 5
AU GND 6
AV A (R) IN 7
AU GND 8
AV A (R) OUT 9
AU GND 10
TU A (L) OUT 11
AU GND 12
TU A (L) IN 13
AU GND 14
VIDEO A (L) IN 15
AU GND 16
AV A (L) IN 17
AU GND 18
AV A (L) OUT 19
AU GND 20
AU GND 21
C+ DET 22
C+ CLK 23
C+ DATA 24
EVER 12V 25
JL121
TU (R)
JL122
JL123
JL124
JL125
JL126
TU (L)
JL127
JL114
JL115
JL116
JL117
JL118
JL119
TO MA-215 BOARD (2/3) CN502
04

NER) SCHEMATIC DIAGRAM

ARD : 5,000 series —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12
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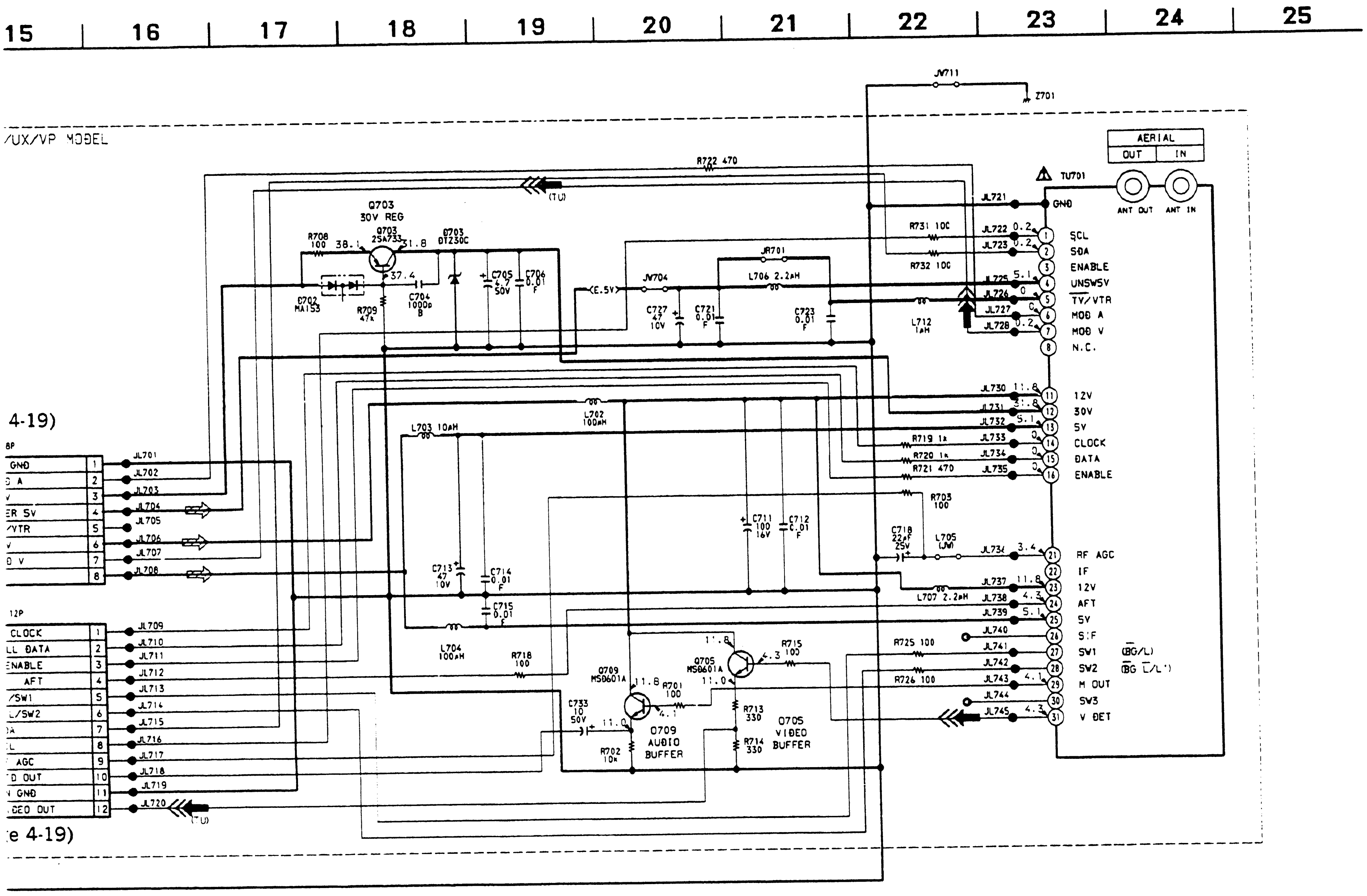
14
:CANAL+ INPUT/OUTPUT)(E500, E600B, E700B/EX/UX, E800BM/NP/VC MODEL)
E500CP, E600B, E700B/EX/UX, E800BM/NP/VC MODEL
E500AP/CP/IT/
(SP mode)
mode)
IC101
BA7630F
VIDEO SWITCH
E500CP, E600B, E700B, E800BM/NP/VC MODEL
IN4
VCC
IN1
N.C.
RST
IN2
GND
IN3
S1
S2
S3
OUT3
OUT1
S9
D.IN
CK IN
S8
S7
S6
S5
S4
OUT2
C103 0.01
C102 47 16V
C101 1 50V
R102 0
C104 1 50V
C105 1 50V
C106 1 50V
R103 10k
R104 10k
R111 1000
Q101, 102 BUFFER
D101 MA153
Q101 MSB709A
Q102 MSD601A
R108 3.9k
R109 1k
R110 75
R105 10k
R107 10k
R106 10k
JR112
JR113
E700EX/UX MODEL
IC104
PQ12RZ5U
12V REG
C137 0.33 F
C136 47 16V
IC131
VIDEO SWITCH
IC131 NJM2235M
E700EX/UX MODEL
(AN.GND)
C131 0.01 F
C132 0.1 B
R131 100
L131 10μH
C133 10 50V
R132 47
JR130
C134 10 50V
(See page 4-
CN701 8P
TO MA-215 BOARD (3/3) CN701
AN GND
MOD A
38V
EVER
TV/VTR
12V
MOD V
5V
CN702 12P
TO MA-215 BOARD (3/3) CN702
PLL CLO
PLL D
TU ENAB
AF
ST/SW
BIL/SW
SDA
SCL
RF AGC
STD OU
AN GND
VIDEO
(See page 4
D113 RD9.1EV
D114 RD9.1EV
D115 RD9.1EV
JW120
JL101
JL102
JL103
JL104
JL105
JL106
JL107
JL108
JL109
JL110
JL111
JL112
JL113
IC102
AUDIO SWITCH
IC102 BA7632F
E500CP, E600B, E700B, E800BM/NP /VC MODEL
C108 22 25V
C109 0.01
L101 100μH
C110 47 16V
C111 22 25V
C112 1 16V B
JR111
C114 22 25V
C115 22 25V
OUT1
CTL4
IN5
VCC
IN4
GND
IN1
CTL1
OUT2
CTL5
CTL3
OUT3
CTL2
IN3
IN2
C107 22 25V
R112 0
E500CP, E600B, E700B, E800BM/NP /VC MODEL
E700EX/UX MODEL
C125 1 16V
C113 22 25V
C123 1 16V
Q103 BUFFER
Q103 MSB709A
E500CP, E600B, E700B/NP/VC MODEL
R115 75
R116 47k
R117 47k
D102 MTZJ-T-6.8
D103 MTZJ-T-6.8
D104 MTZJ-T-6.8
D105 MTZJ-T-6.8
D106 MTZJ-T-6.8
D107 MTZJ-T-13
CJ101 21P
CANAL+
SW GND
V IN
V OUT
SW GND
SW GND
I
R
SW GND
SW GND
N.C.
G
N.C.
SW GND
AV CONT
B
A (L) IN
SW GND
A GND
A (L) OUT
A (R) IN
A (R) OUT
JL128
JL129
JL130
JL131
JL132
JL133
JL134
JL135
JL136
JL137
JL138
JL139
JL140
JL141
JL142
JL143
JL144
JL145
JL146
JL147
JL148
JL121 TU (R)
JL122 TU (R)
JL123
JL124
JL125
JL126 TU (L)
JL127 TU (L)
JL114
JL115
JL116
JL117
JL118
JL119
IC103
AUDIO SWITCH TU (R)
IC103 BA7632F
E700EX/UX MODEL
JW116
C117 22 25V
C118 22 25V
C119 22 25V
C121 22 25V
C122 22 25V
E600B, E700B, E800BM/NP/VC MODEL
C116 22 25V
R114
C124 1 16V
E700EX/UX MODEL
C120 22 25V
FL103
R118 470
FL101
R120 560
D116 RD9.1EV
E500CP MODEL
JW107
R121 560
FL102
JR104
D108 MTZJ-T-6.8
FL104
R119 470
D117 RD9.1EV
D111 MTZJ-T-6.8
D112 MTZJ-T-6.8
D109 MTZJ-T-6.8
D110 MTZJ-T-6.8
E500CP MODEL
E600B, E700B/EX/UX, E800BM/NP/VC MODEL
E500CP, E600B, E700B, E800BM/NP/VC MODEL
E600B, E700B, E800BM/NP/VC MODEL


15
16
17
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21
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23
24
25
/UX/VP MODEL
4-19)
8P
GND 1 JL701
A 2 JL702
V 3 JL703
ER 5V 4 JL704
/VTR 5 JL705
V 6 JL706
D V 7 JL707
8 JL708
12P
CLOCK 1 JL709
LL DATA 2 JL710
ENABLE 3 JL711
AFT 4 JL712
/SW1 5 JL713
L/SW2 6 JL714
A 7 JL715
L 8 JL716
AGC 9 JL717
D OUT 10 JL718
N GND 11 JL719
DEO OUT 12 JL720
(TU)
e 4-19)
Q703 30V REG
Q703 2SA733
D703 DTZ30C
R708 100
38.1
31.8
37.4
D702 MA153
R709 47k
C704 1000p B
C705 4.7 50V
C706 0.01 F
(E.5V)
JW704
JR701
L706 2.2μH
C727 47 10V
C721 0.01 F
C723 0.01 F
R722 470
L702 100μH
L703 10μH
C711 100 16V
C712 0.01 F
C713 47 10V
C714 0.01 F
C715 0.01 F
L704 100μH
R718 100
Q709 MS0601A
Q705 MS0601A
R701 100
R715 100
R713 330
R714 330
R702 10k
C733 10 50V
Q709 AUDIO BUFFER
Q705 VIDEO BUFFER
11.8
11.0
4.1
4.3
JW711
Z701
AERIAL
OUT
IN
⚠ TU701
ANT OUT
ANT IN
GND
JL721
R731 100
R732 100
L712 1μH
JL722 0.2 ① SCL
JL723 0.2 ② SDA
③ ENABLE
JL725 5.1 ④ UNSWSV
JL726 0 ⑤ TV/VTR
JL727 0 ⑥ MOD A
JL728 0.2 ⑦ MOD V
⑧ N.C.
JL730 11.8 ⑪ 12V
JL731 31.8 ⑫ 30V
JL732 5.1 ⑬ 5V
R719 1k JL733 0 ⑭ CLOCK
R720 1k JL734 0 ⑮ DATA
R721 470 JL735 0 ⑯ ENABLE
R703 100
C718 22μF 25V
L705 (JW)
JL736 3.4 ㉑ RF AGC
㉒ IF
L707 2.2μH JL737 11.8 ㉓ 12V
JL738 4.3 ㉔ AFT
JL739 5.1 ㉕ 5V
JL740 ㉖ S:F
R725 100 JL741 ㉗ SW1 (BG/L)
R726 100 JL742 ㉘ SW2 (BG L/L')
JL743 4.1 ㉙ M OUT
JL744 ㉚ SW3
JL745 4.3 ㉛ V DET

* IC102. 103

UK HIFI ONLY		L-CH L2/L3 IN3 ⑪	TUNER IN1 ⑦
① OUT1	⑫ SW2	L	L
	⑭ SW3	X (H)	X (H)
	② SW4	X (H)	X (L)
	⑧ SW1	H	L
	⑮ SW5	L	L

		R-CH IN4 ⑤	IN2 ⑨
⑬ OUT3	⑫ SW2	X (L)	X (L)
	⑭ SW3	X (H)	X (H)
	② SW4	H	L

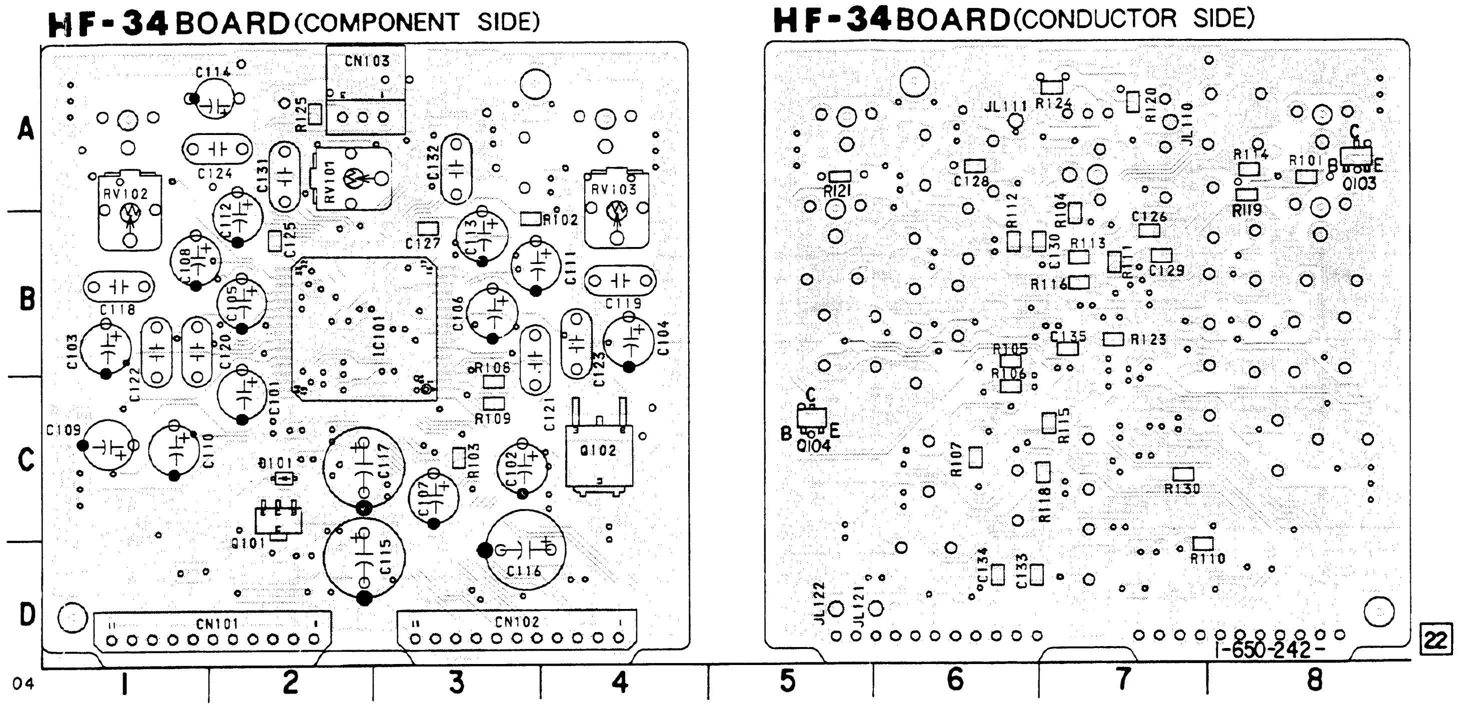
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡≫	➡
PB			⇨≫	⇨

HF-34 (AUDIO PROCESS) PRINTED WIRING BOARD

— Ref. No. HF-34 BOARD : 4,000 series —

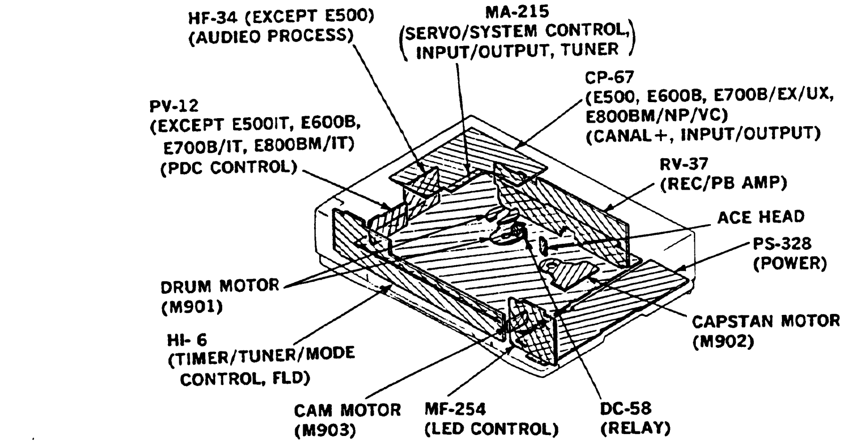


HF-34 BOARD (COMPONENT SIDE)

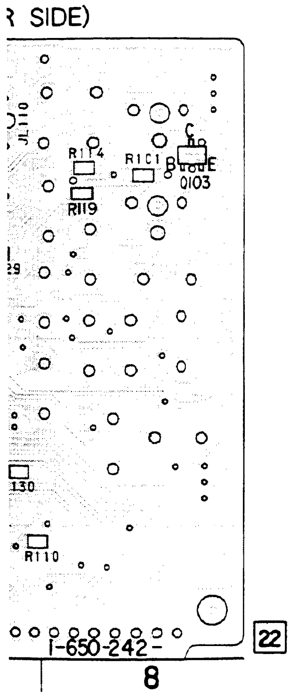
HF-34 BOARD (CONDUCTOR SIDE)

A
B
C
D
04
1
2
3
4
5
6
7
8
CN103
C114
R125
RV102
C124
C131
RV101
C132
RV103
R102
C112
C108
C125
C127
C113
C111
C118
C105
IC101
C106
C119
C103
C122
C120
C101
R106
C123
C104
C109
C110
C121
R109
Q102
D101
C117
R103
C102
C107
Q101
C115
C116
CN101
CN102
JL111
R124
R120
JL110
R114
R101
Q103
R121
C128
R112
R104
C126
R119
R113
C130
R116
C129
R135
R123
R105
R108
Q104
R115
R107
R118
R130
R110
C134
C133
JL122
JL121
1-650-242-
22

HF-34 BOARD	
CN101	D-1
CN102	D-3
CN103	A-2
D101	C-2
IC101	B-2
Q101	C-2
Q102	C-4
Q103	A-8
Q104	C-5



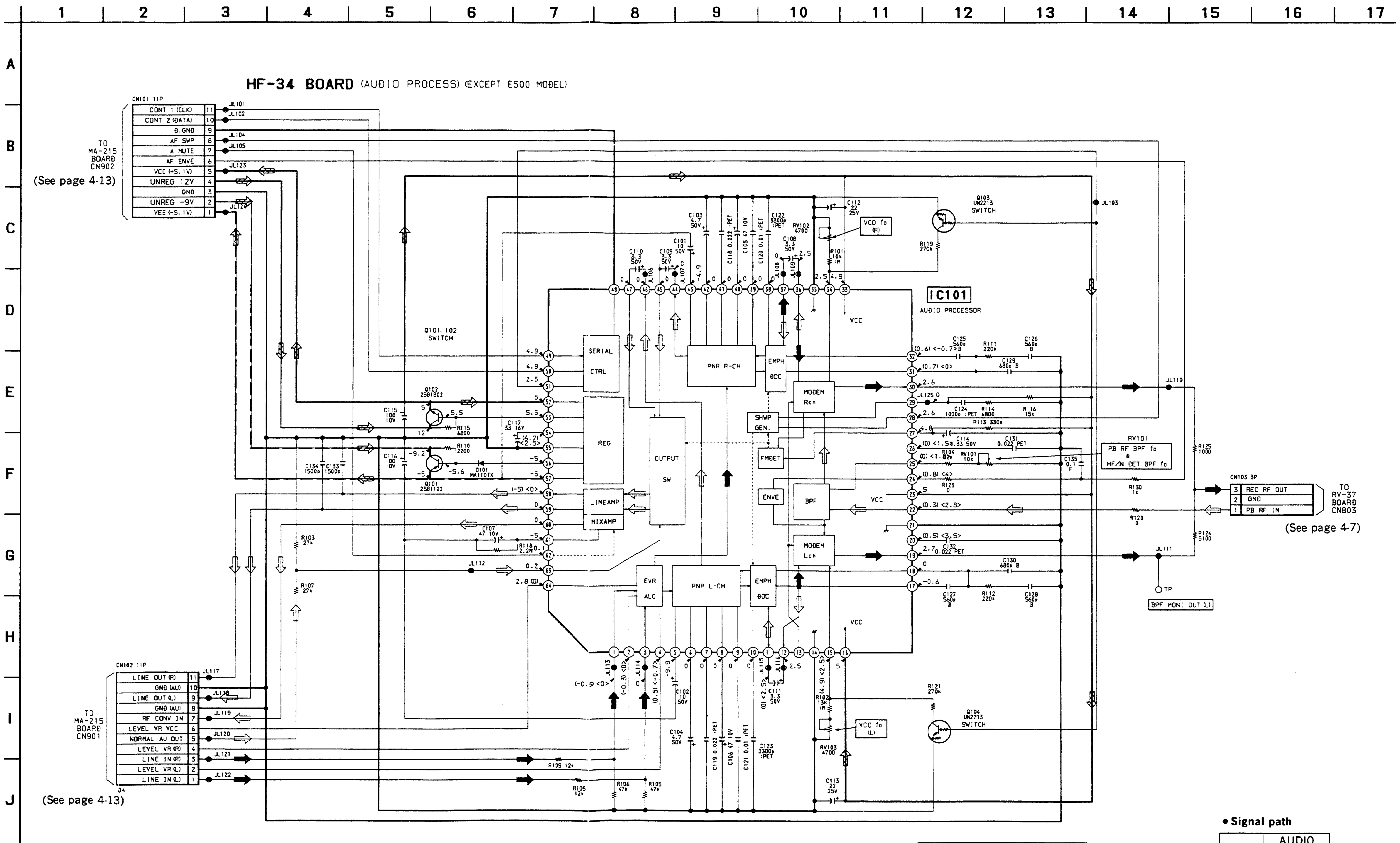
HF-34 (EXCEPT E500) (AUDIEO PROCESS)
MA-215 (SERVO/SYSTEM CONTROL, INPUT/OUTPUT, TUNER)
CP-67 (E500, E600B, E700B/EX/UX, E800BM/NP/VC) (CANAL+, INPUT/OUTPUT)
PV-12 (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT) (PDC CONTROL)
RV-37 (REC/PB AMP)
ACE HEAD
PS-328 (POWER)
DRUM MOTOR (M901)
HI- 6 (TIMER/TUNER/MODE CONTROL, FLD)
CAPSTAN MOTOR (M902)
CAM MOTOR (M903)
MF-254 (LED CONTROL)
DC-58 (RELAY)


SIDE)
R114
R101
0103
R119
130
R110
1-650-242-
22
8

HF-34 BOARD	
CN101	D-1
CN102	D-3
CN103	A-2
D101	C-2
IC101	B-2
Q101	C-2
Q102	C-4
Q103	A-8
Q104	C-5

HF-34 (AUDIO PROCESS) SCHEMATIC DIAGRAM

— Ref. No. HF-34 BOARD : 4,000 series —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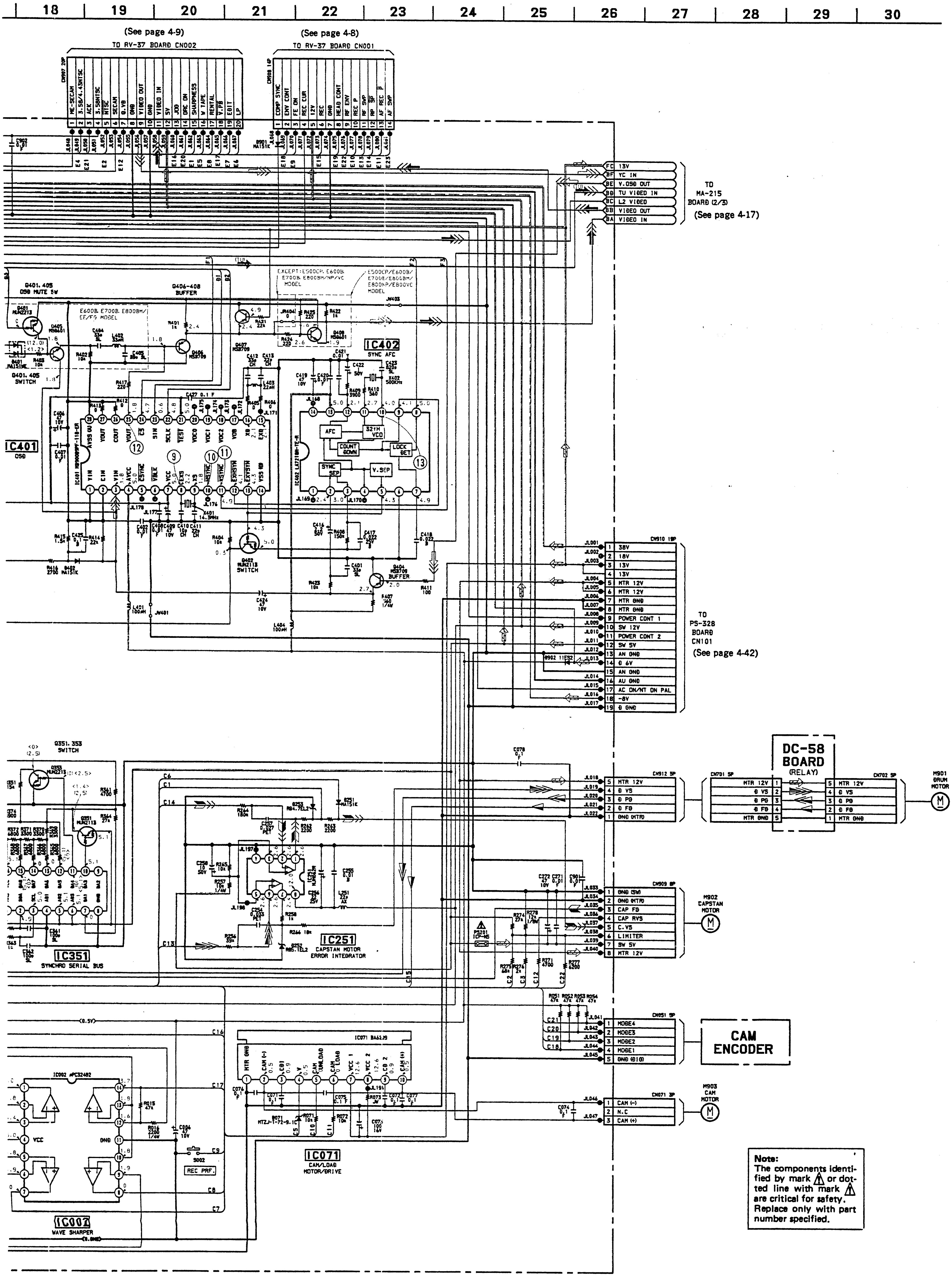
A
B
C
D
E
F
G
H
I
J
HF-34 BOARD (AUDIO PROCESS) (EXCEPT E500 MODEL)
CN101 11P
CONT 1 (CLK) 11
CONT 2 (DATA) 10
D.GND 9
AF SWP 8
A MUTE 7
AF ENVE 6
VCC (+5.1V) 5
UNREG 12V 4
GND 3
UNREG -9V 2
VEE (-5.1V) 1
TO MA-215 BOARD CN902
(See page 4-13)
JL101
JL102
JL104
JL105
JL123
JL124
Q101, 102 SWITCH
Q102 2SD1802
Q101 2SB1122
D101 MA110TX
C115 100 10V
C116 100 10V
C117 33 16V
C134 1500p
C133 1500p
R115 6800
R110 2200
C107 47 10V
R118 2.2M
R103 27k
R107 27k
JL112
SERIAL CTRL
REG
LINEAMP
MIXAMP
OUTPUT SW
EVR ALC
PNR R-CH
PNR L-CH
EMPH DOC
MODEM Rch
MODEM Lch
SHWP GEN.
FMDET
ENVE
BPF
IC101
AUDIO PROCESSOR
VCC
Q103 UN2213 SWITCH
Q104 UN2213 SWITCH
VCO fo (R)
VCO fo (L)
RV101
PB RF BPF fo & HF/N DET BPF fo
RV102 4700
RV103 4700
R101 10k :M
R102 13k :M
R119 270k
R121 270k
C103 4.7 50V
C118 0.022 :PET
C105 47 10V
C120 0.01 :PET
C122 3300p :PET
C101 10 50V
C110 3.3 50V
C109 3.3 50V
C108 3.3 50V
C112 22 25V
C113 22 25V
C102 10 50V
C104 4.7 50V
C119 0.022 :PET
C106 47 10V
C121 0.01 :PET
C123 3300p :PET
C111 3.3 50V
C125 560p B
C126 560p B
C129 680p B
C124 1000p :PET
C114 3.3 50V
C131 0.022 PET
C135 0.1 F
C132 0.022 PET
C130 680p B
C127 560p B
C128 560p B
R111 220k
R114 6800
R116 15k
R113 330k
R104 82k
RV101 10k
R123 0
R112 220k
R125 1000
R130 1k
R120 0
R124 5100
R109 12k
R108 12k
R106 47k
R105 47k
JL103
JL106
JL107
JL108
JL109
JL110
JL111
JL113
JL114
JL115
JL116
JL125
CN103 3P
3 REC RF OUT
2 GND
1 PB RF IN
TO RV-37 BOARD CN803
(See page 4-7)
TP
BPF MONI OUT (L)
CN102 11P
LINE OUT (R) 11
GND (AU) 10
LINE OUT (L) 9
GND (AU) 8
RF CONV IN 7
LEVEL VR VCC 6
NORMAL AU OUT 5
LEVEL VR (R) 4
LINE IN (R) 3
LEVEL VR (L) 2
LINE IN (L) 1
TO MA-215 BOARD CN901
(See page 4-13)
JL117
JL118
JL119
JL120
JL121
JL122

no mark: REC/PB mode (SP mode)
( ): REC mode (SP mode)
< >: PB mode (SP mode)

• Signal path

	AUDIO Signal
REC	➡
PB	⇨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19
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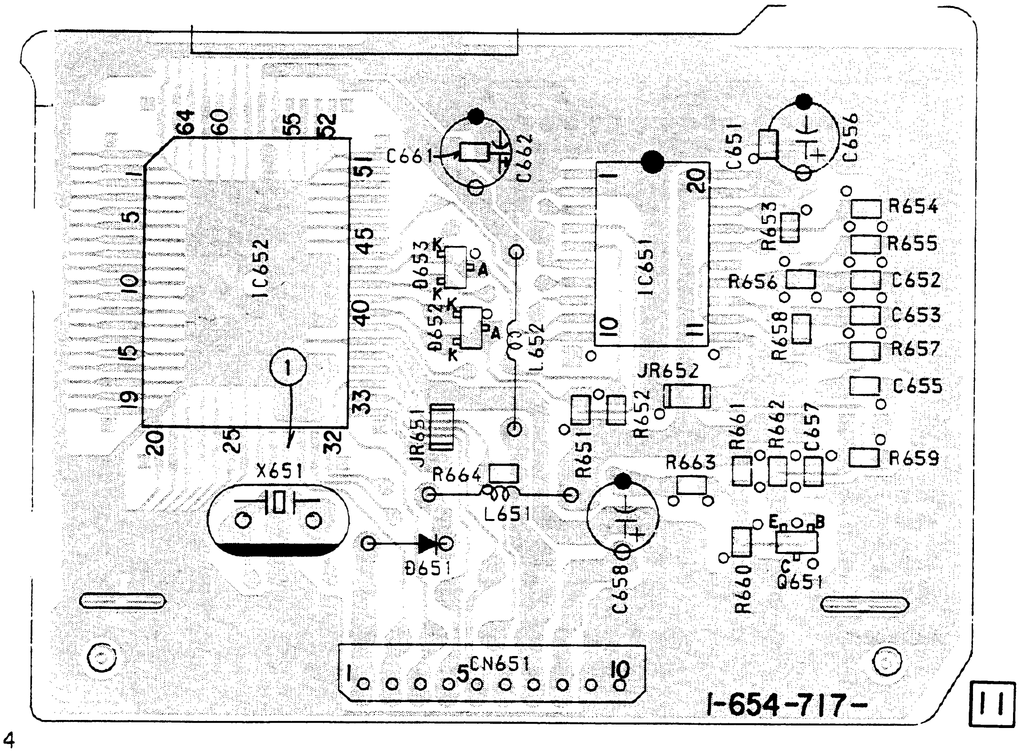
25
26
27
28
29
30
(See page 4-9)
TO RV-37 BOARD CN002
(See page 4-8)
TO RV-37 BOARD CN001
CN907 20P
CN908 14P
ME-SECAM
3.58/4.43NTSC
ACK
3.58NTSC
NTSC
SECAM
Q.VB
GND
VIDEO OUT
GND
VIDEO IN
5V
JOG
ORC ON
SHARPNESS
V TAPE
RENTAL
V.PB
EDIT
LP
COMP SYNC
ENV CONT
FE ON
REC CUR
12V
REC
GND
HEAD CONT
RF ENV
REC P
RF SWP
RP SP
AF REC P
AF SWP
13V
YC IN
V.OSD OUT
TU VIDEO IN
L2 VIDEO
VIDEO OUT
VIDEO IN
TO MA-215 BOARD (2/3)
(See page 4-17)
Q401, 405 OSD MUTE SW
Q406-408 BUFFER
E600B, E700B, E800BM/EE/FG MODEL
EXCEPT: E500CP, E600B, E700B, E800BM/NP/VC MODEL
E500CP/E600B/E700E/E800BM/E800NP/E800VC MODEL
Q401, 405 SWITCH
IC401 OSD
IC402 SYNC AFC
AFC
32fH VCO
COUNT DOWN
LOCK DET
SYNC SEP
V.SEP
Q402 MUN2113 SWITCH
Q404 MSB709 BUFFER
X401 14.3MHz
X402 500KHz
CN910 19P
38V
18V
13V
13V
MTR 12V
MTR 12V
MTR GND
MTR GND
POWER CONT 1
SW 12V
POWER CONT 2
SW 5V
AN GND
D 6V
AN GND
AU GND
AC ON/NT ON PAL
-8V
D GND
TO PS-328 BOARD CN101
(See page 4-42)
Q351, 353 SWITCH
IC351 SYNCHRO SERIAL BUS
IC251 CAPSTAN MOTOR ERROR INTEGRATOR
CN912 5P
MTR 12V
D VS
D PG
D FG
GND (MTR)
DC-58 BOARD (RELAY)
CN701 5P
CN702 5P
M901 DRUM MOTOR
CN909 8P
GND (SW)
GND (MTR)
CAP FG
CAP RVS
C.VS
LIMITER
SW 5V
MTR 12V
M902 CAPSTAN MOTOR
PS201 ICP-N5
CN051 5P
MODE4
MODE3
MODE2
MODE1
GND (DIG)
CAM ENCODER
IC071 BA6239
MTR GND
CAM (-)
CAM (+)
UNLOAD
LOAD
VCC 1
VCC 2
CN071 3P
CAM (-)
N.C
CAM (+)
M903 CAM MOTOR
IC071 CAM/LOAD MOTOR/DRIVE
IC002 μPC324G2
VCC
GND
S002
REC PRF.
IC002 WAVE SHAPER

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

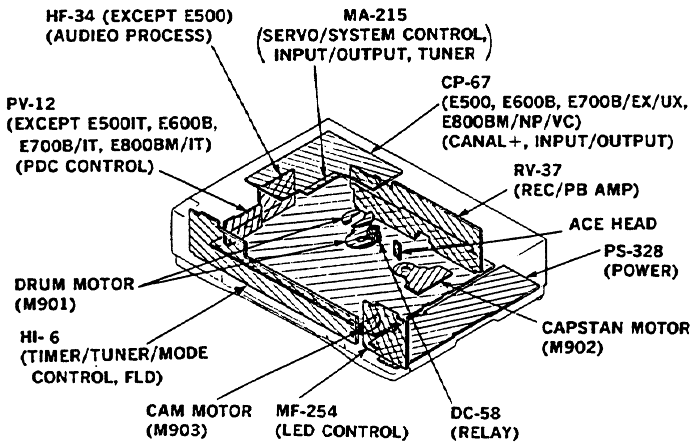
PV-12 (PDC CONTROL) PRINTED WIRING BOARD

— Ref. No. PV-12 BOARD : 3,000 series —

PV-12 BOARD (EXCEPT E500IT,E600B,E700B/IT,E800BM/IT MODEL)



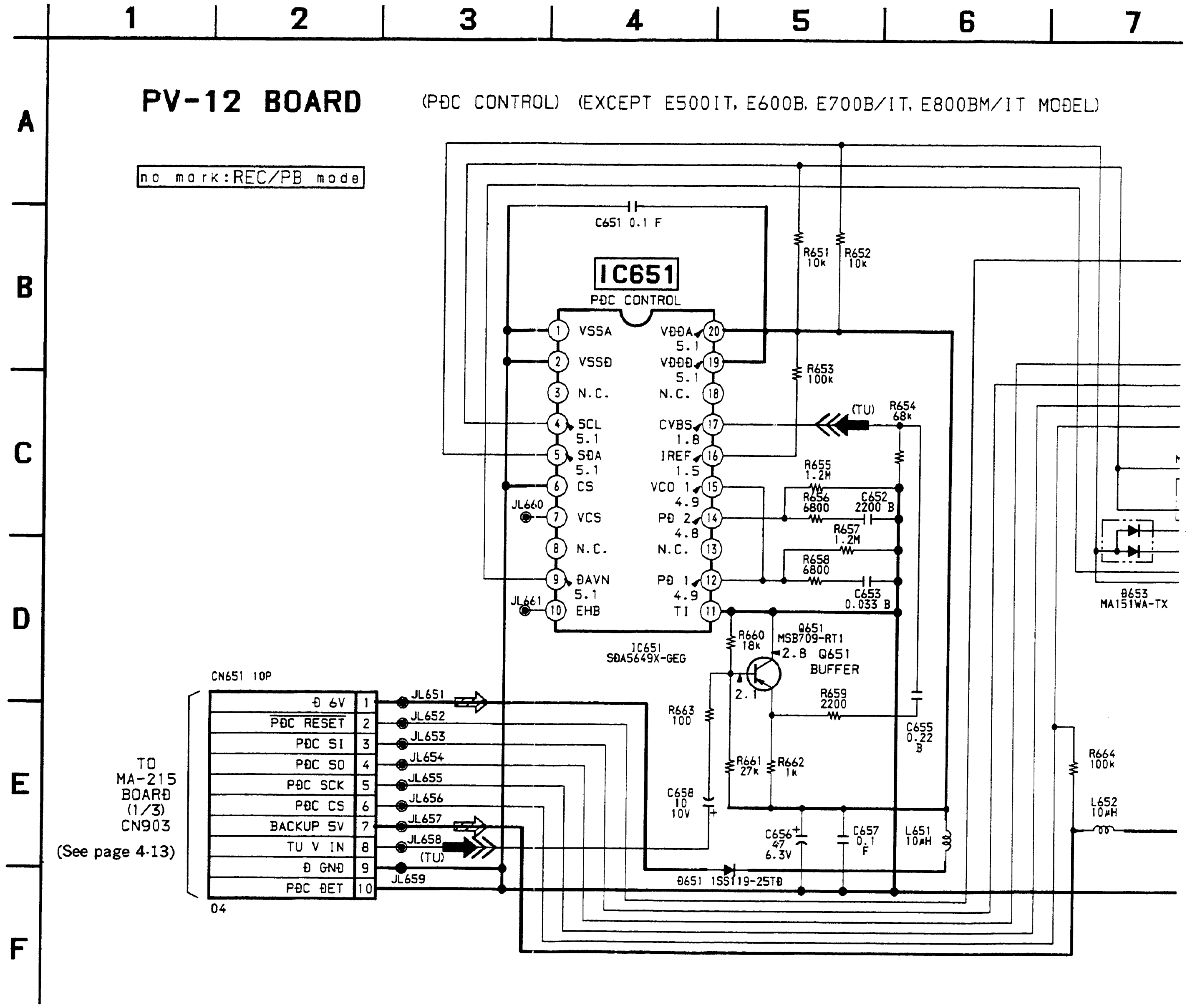
IC652
64
60
55
52
51
45
40
33
32
25
20
19
15
10
5
1
C661
C662
C651
C656
IC651
1
10
11
20
R654
R655
C652
C653
R657
C655
R659
R653
R656
R658
D653
D652
L652
JR652
JR651
R652
R651
R661
R662
C657
R663
R664
X651
L651
D651
C658
R660
Q651
E
C
B
CN651
1
5
10
1-654-717-
11
04



HF-34 (EXCEPT E500)
(AUDIEO PROCESS)
MA-215
(SERVO/SYSTEM CONTROL, INPUT/OUTPUT, TUNER)
CP-67
(E500, E600B, E700B/EX/UX, E800BM/NP/VC)
(CANAL+, INPUT/OUTPUT)
PV-12
(EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)
(PDC CONTROL)
RV-37
(REC/PB AMP)
ACE HEAD
PS-328
(POWER)
DRUM MOTOR
(M901)
HI-6
(TIMER/TUNER/MODE CONTROL, FLD)
CAPSTAN MOTOR
(M902)
CAM MOTOR
(M903)
MF-254
(LED CONTROL)
DC-58
(RELAY)

PV-12 (PDC CONTROL) SCHEMATIC DIAGRAM

— Ref. No. PV-12 BOARD : 3,000 series —



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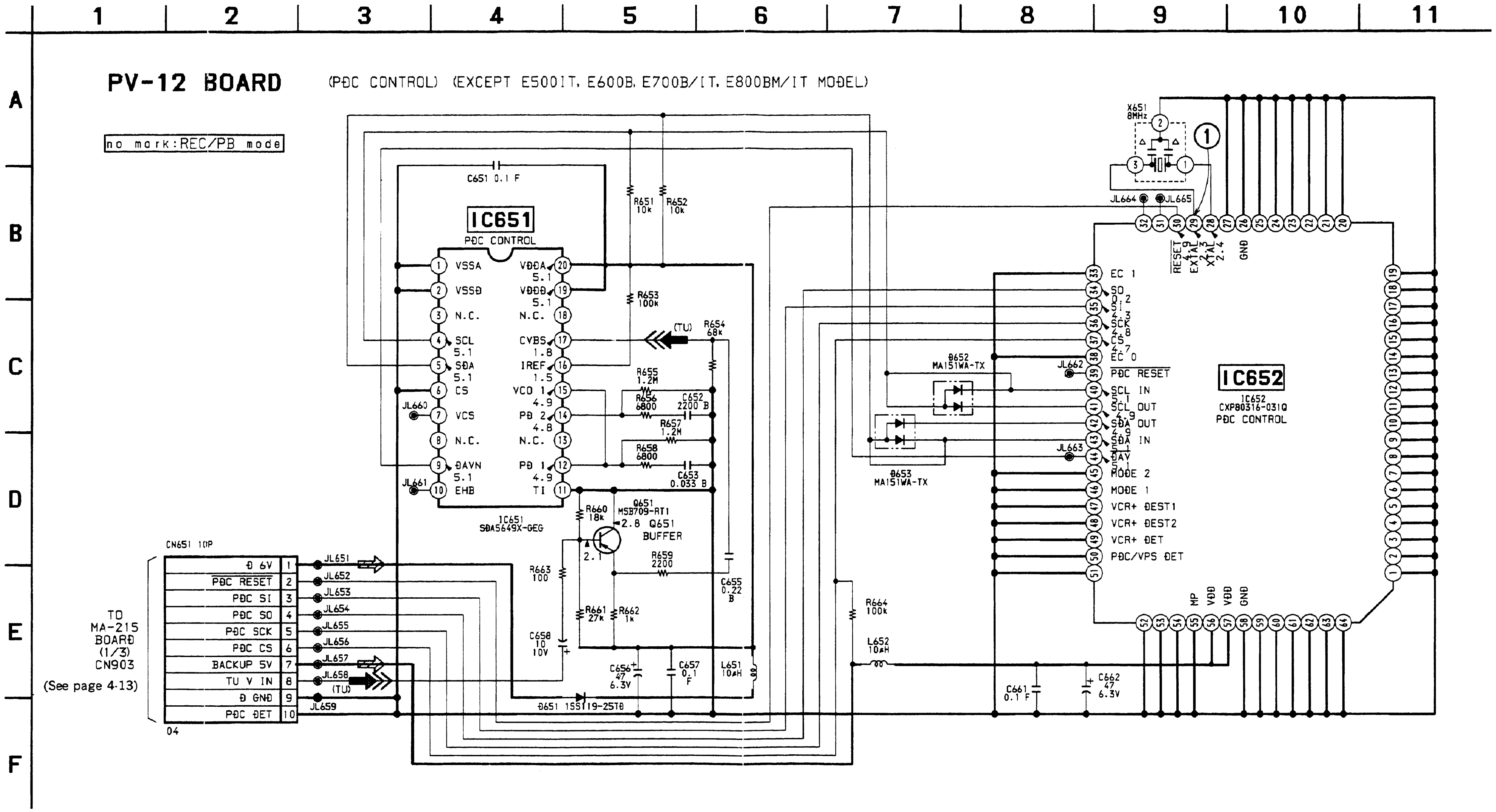
A
B
C
D
E
F
PV-12 BOARD
(PDC CONTROL) (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT MODEL)
no mark:REC/PB mode
C651 0.1 F
IC651
PDC CONTROL
VSSA
VSSD
N.C.
SCL 5.1
SDA 5.1
CS
VCS
N.C.
DAVN 5.1
EHB
VDDA 5.1
VDDD 5.1
N.C.
CVBS 1.8
IREF 1.5
VCO 1 4.9
PD 2 4.8
N.C.
PD 1 4.9
TI
IC651
SDA5649X-GEG
R651 10k
R652 10k
R653 100k
(TU)
R654 68k
R655 1.2M
R656 6800
C652 2200 B
R657 1.2M
R658 6800
C653 0.033 B
JL660
JL661
Q651
MSB709-RT1
2.8
Q651
BUFFER
R660 18k
2.1
R659 2200
R663 100
C655 0.22 B
R661 27k
R662 1k
C658 10 10V
C656 47 6.3V
C657 0.1 F
L651 10μH
D651 1SS119-25TD
D653
MA151WA-TX
R664 100k
L652 10μH
CN651 10P
D 6V
PDC RESET
PDC SI
PDC SO
PDC SCK
PDC CS
BACKUP 5V
TU V IN
D GND
PDC DET
JL651
JL652
JL653
JL654
JL655
JL656
JL657
JL658
JL659
(TU)
TO MA-215 BOARD (1/3) CN903
(See page 4-13)
04

M/IT MODEL)

PV-12 (PDC CONTROL) SCHEMATIC DIAGRAM

— Ref. No. PV-12 BOARD : 3,000 series —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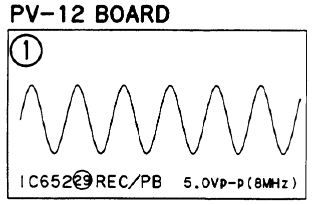
11
A
B
C
D
E
F
PV-12 BOARD
(PDC CONTROL) (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT MODEL)
no mark:REC/PB mode
IC651
PDC CONTROL
IC651 SDA5649X-GEG
VSSA
VSSD
N.C.
SCL
SDA
CS
VCS
N.C.
DAVN
EHB
VDDA
VDDD
N.C.
CVBS
IREF
VCO 1
PD 2
N.C.
PD 1
TI
C651 0.1 F
R651 10k
R652 10k
R653 100k
R654 68k
R655 1.2M
R656 6800
C652 2200 B
R657 1.2M
R658 6800
C653 0.033 B
(TU)
JL660
JL661
Q651 MSB709-RT1
Q651 BUFFER
R660 18k
R659 2200
R663 100
R661 27k
R662 1k
C655 0.22 B
C658 10 10V
C654 47 6.3V
C657 0.1 F
L651 10μH
D651 1SS119-25TD
CN651 10P
D 6V
PDC RESET
PDC SI
PDC SO
PDC SCK
PDC CS
BACKUP 5V
TU V IN
D GND
PDC DET
JL651
JL652
JL653
JL654
JL655
JL656
JL657
JL658
JL659
TO MA-215 BOARD (1/3) CN903
(See page 4-13)
04
D652 MA151WA-TX
D653 MA151WA-TX
R664 100k
L652 10μH
C661 0.1 F
C662 47 6.3V
X651 8MHz
①
JL664
JL665
JL662
JL663
RESET
EXTAL
XTAL
GND
EC 1
SO
SI
SCK
CS
EC 0
PDC RESET
SCL IN
SCL OUT
SDA OUT
SDA IN
DAV
MODE 2
MODE 1
VCR+ DEST1
VCR+ DEST2
VCR+ DET
PDC/VPS DET
MP
VDD
VDD
GND
IC652
IC652 CXP80316-031Q
PDC CONTROL

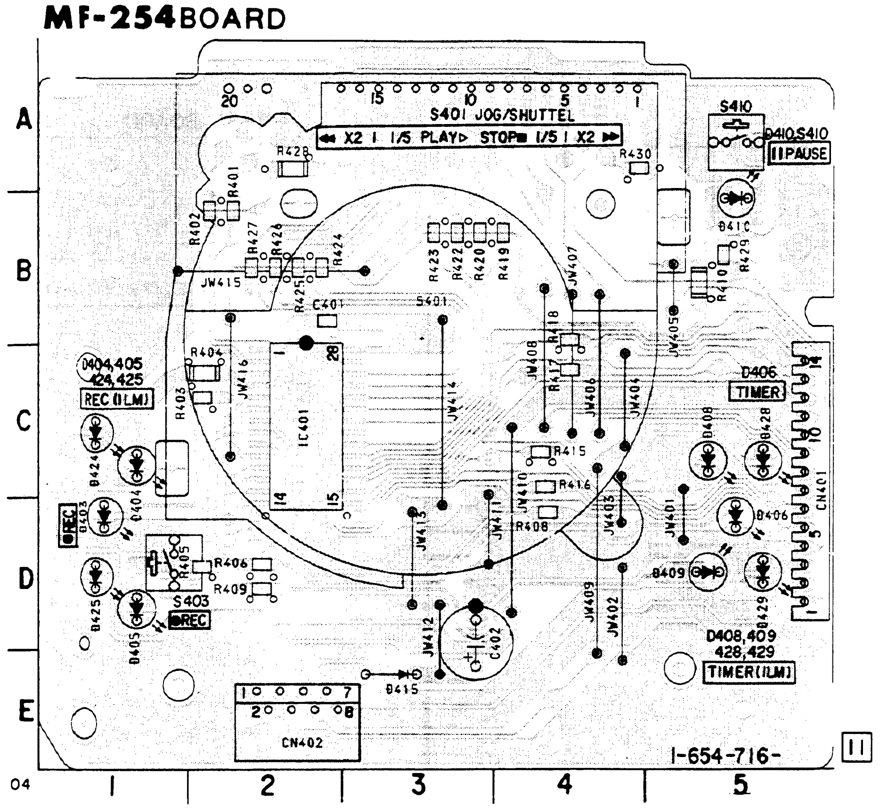
PV-12 BOARD



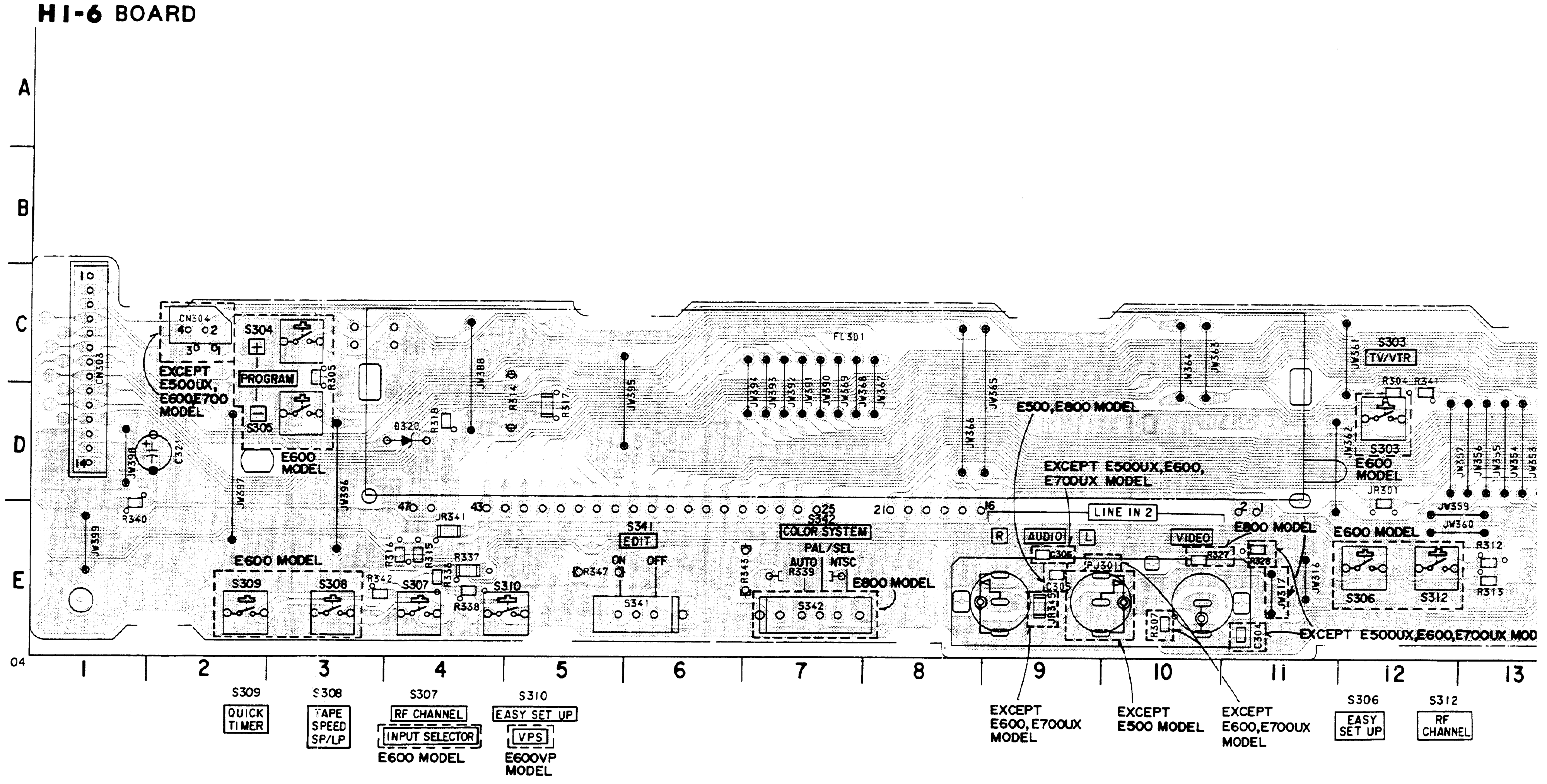
00B, E700B/EX/UX,
IP/VC)
, INPUT/OUTPUT)
V-37
REC/PB AMP)
ACE HEAD
PS-328
(POWER)
CAPSTAN MOTOR
(M902)

HI-6 (TIMER/TUNER/MODE CONTROL) MF-254 (LED CONTROL) PRINTED WIRING BOARD

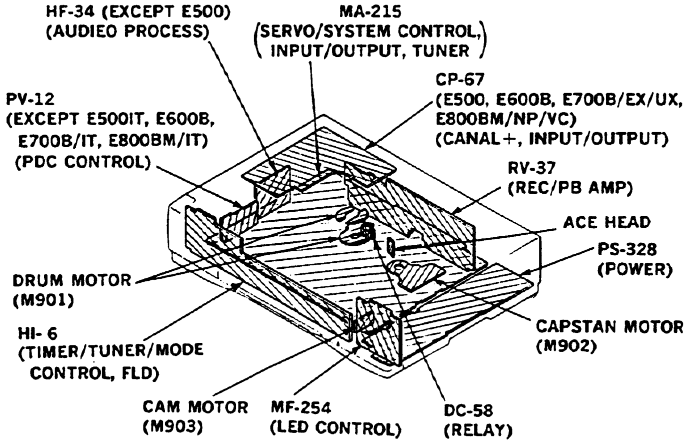
— Ref. No. HI-6 BOARD, MF-254 BOARD BOARD : 3,000 series —


MF-254 BOARD
A
B
C
D
E
S401 JOG/SHUTTEL
◀◀ X2 I 1/5 PLAY▷ STOP■ 1/5 I X2 ▶▶
S410
D410,S410
II PAUSE
D404,405
424,425
REC (ILM)
REC
S403
REC
D406
TIMER
D408,409
428,429
TIMER(ILM)
CN401
CN402
IC401
1-654-716-
11
04
1
2
3
4
5

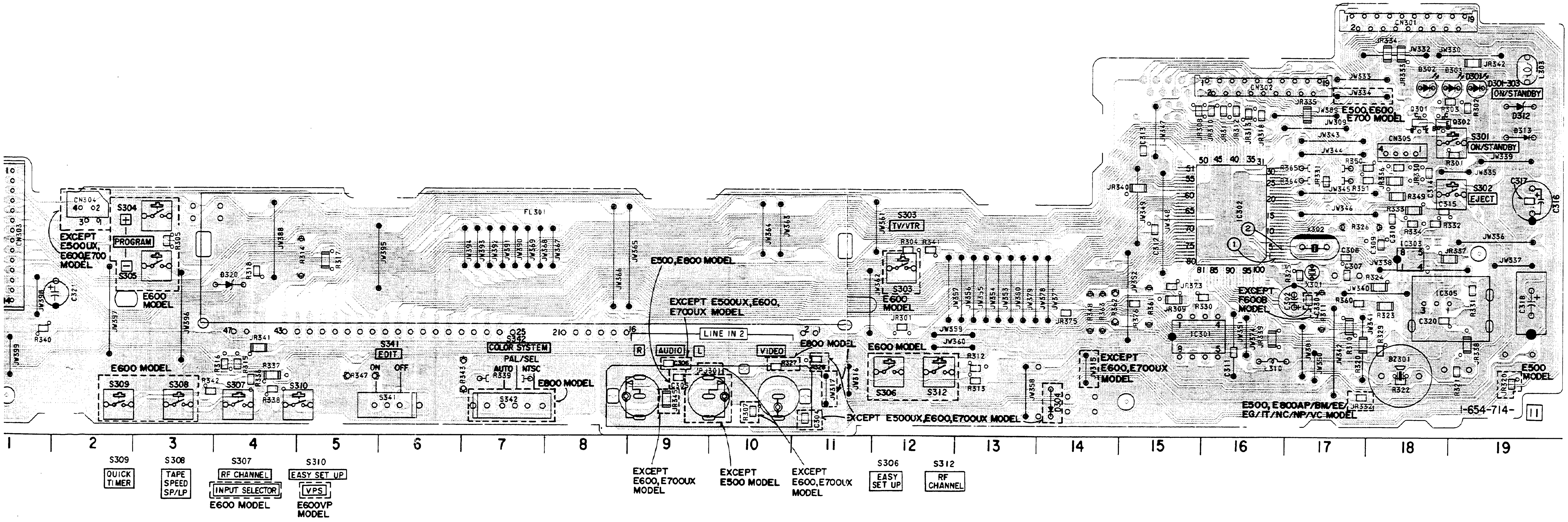
MF-254 BOARD	
CN401	C-5
CN402	E-2
D403	D-1
D404	C-1
D405	D-1
D406	D-5
D408	C-5
D409	D-5
D410	B-5
D415	E-3
D424	C-1
D425	D-1
D428	C-5
D429	D-5
IC401	C-2


HI-6 BOARD
A
B
C
D
E
CN304
S304
PROGRAM
S305
EXCEPT E500UX, E600E700 MODEL
E600 MODEL
FL301
E500,E800 MODEL
EXCEPT E500UX,E600, E700UX MODEL
S303
TV/VTR
E600 MODEL
LINE IN 2
AUDIO
R
L
VIDEO
E800 MODEL
E600 MODEL
S341
EDIT
ON OFF
S342
COLOR SYSTEM
PAL/SEL
AUTO NTSC
E800 MODEL
E600 MODEL
S309
S308
S307
S310
S306
S312
EXCEPT E500UX,E600,E700UX MOD
04
1
2
3
4
5
6
7
8
9
10
11
12
13
S309
QUICK TIMER
S308
TAPE SPEED SP/LP
S307
RF CHANNEL
INPUT SELECTOR
E600 MODEL
S310
EASY SET UP
VPS
E600VP MODEL
EXCEPT E600,E700UX MODEL
EXCEPT E500 MODEL
EXCEPT E600,E700UX MODEL
S306
EASY SET UP
S312
RF CHANNEL

HI-6 BOARD			
CN301	A-18	IC301	D-15
CN302	B-16	IC302	C-16
CN303	C-1	IC303	D-18
CN304	C-2		
CN305	B-18	Q301	B-18
		Q302	B-18
D301	A-19		
D302	A-18		
D303	A-18		
D304	E-14		
D312	B-19		
D320	D-4		


HF-34 (EXCEPT E500)
(AUDIEO PROCESS)
MA-215
(SERVO/SYSTEM CONTROL, INPUT/OUTPUT, TUNER)
CP-67
(E500, E600B, E700B/EX/UX, E800BM/NP/VC)
(CANAL+, INPUT/OUTPUT)
PV-12
(EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)
(PDC CONTROL)
RV-37
(REC/PB AMP)
ACE HEAD
PS-328
(POWER)
DRUM MOTOR
(M901)
CAPSTAN MOTOR
(M902)
HI- 6
(TIMER/TUNER/MODE CONTROL, FLD)
CAM MOTOR
(M903)
MF-254
(LED CONTROL)
DC-58
(RELAY)

-6 BOARD


CN301
CN302
CN303
CN304
CN305
IC301
IC302
IC303
FL301
X301
X302
BZ301
S304
PROGRAM
S305
E600 MODEL
EXCEPT E500UX, E600,E700 MODEL
E500,E600 E700 MODEL
E500,E800 MODEL
EXCEPT E500UX,E600, E700UX MODEL
LINE IN 2
AUDIO
VIDEO
R
L
E800 MODEL
S303
TV/VTR
S301
ON/STANDBY
S302
EJECT
D301-303
EXCEPT E600B MODEL
EXCEPT E600,E700UX MODEL
E500 MODEL
E500, E800AP/BM/EE/EG/IT/NC/NP/VC MODEL
EXCEPT E500UX,E600,E700UX MODEL
S341
EDIT
ON
OFF
S342
COLOR SYSTEM
PAL/SEL
AUTO
NTSC
S309
S308
S307
S310
S306
S312
1-654-714-
11
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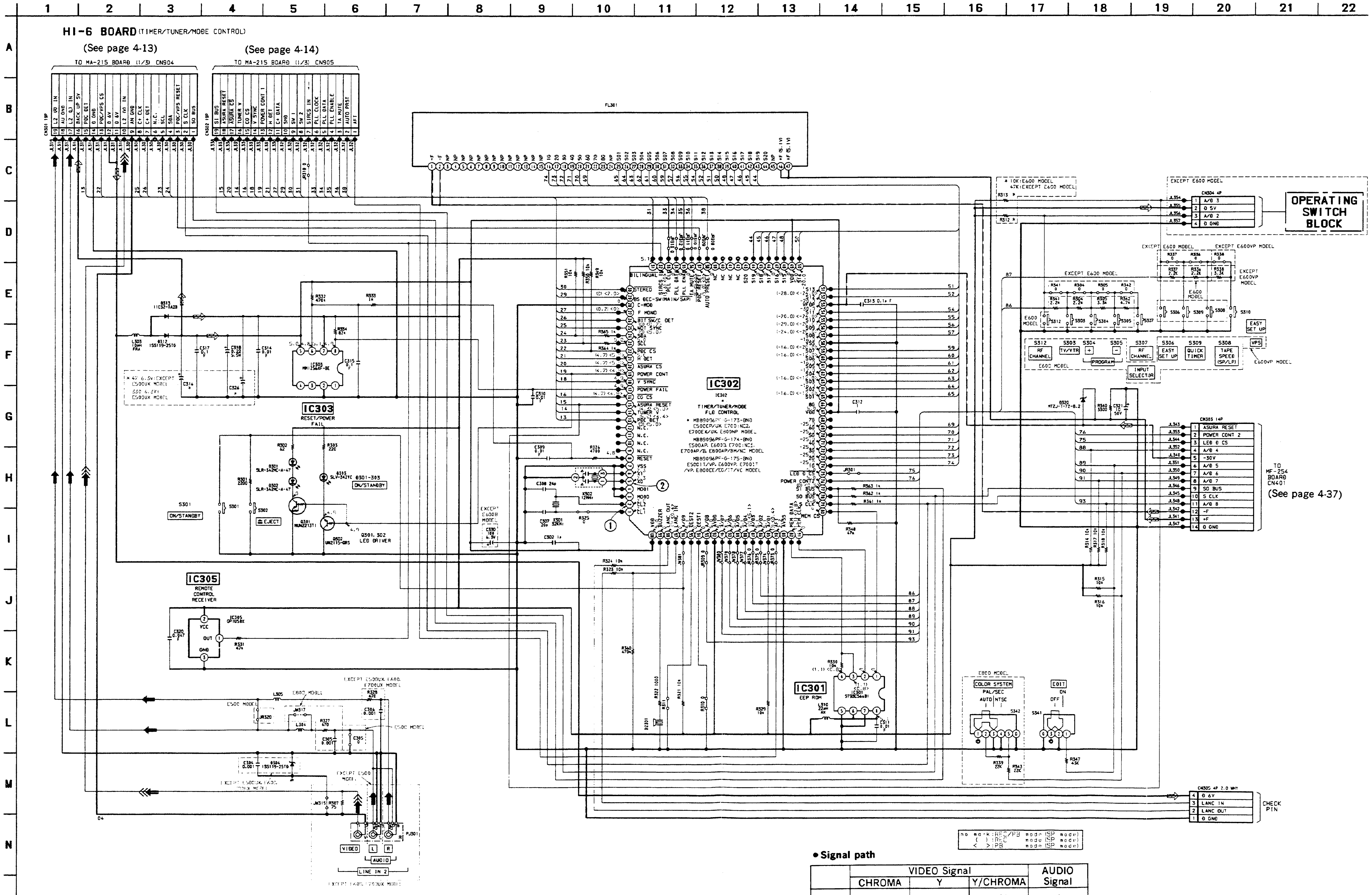
16
17
18
19
S309
QUICK TIMER
S308
TAPE SPEED SP/LP
S307
RF CHANNEL
INPUT SELECTOR
E600 MODEL
S310
EASY SET UP
VPS
E600VP MODEL
EXCEPT E600,E700UX MODEL
EXCEPT E500 MODEL
EXCEPT E600,E700UX MODEL
S306
EASY SET UP
S312
RF CHANNEL

HI-6 BOARD

CN301	A-18	IC301	D-15
CN302	B-16	IC302	C-16
CN303	C-1	IC303	D-18
CN304	C-2		
CN305	B-18	Q301	B-18
		Q302	B-18
D301	A-19		
D302	A-18		
D303	A-18		
D304	E-14		
D312	B-19		
D320	D-4		

HI-6 (TIMER/TUNER/MODE CONTROL) MF-254 (LED CONTROL) SCHEMATIC DIAGRAM

— Ref. No. HI-6 BOARD, MF-254 BOARD : 3,000 series — • Operating switch block is replaced as block, so that printed wiring board and schematic diagram is omitted.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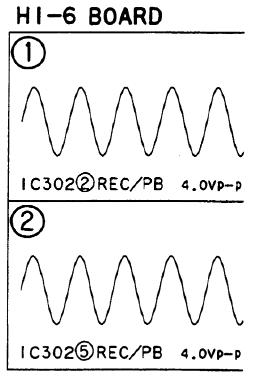
I
J
K
L
M
N
O
HI-6 BOARD (TIMER/TUNER/MODE CONTROL)
(See page 4-13)
TO MA-215 BOARD (1/3) CN904
(See page 4-14)
TO MA-215 BOARD (1/3) CN905
FL301
IC302
TIMER/TUNER/MODE FLD CONTROL
* MB89096PF-G-173-BND E500CP/UX. E700:NC2. E700EX/UX. E800NP MODEL
MB89096PF-G-174-BND E500AP. E600B. E700:NC1. E700AP/B. E800AP/BM/NC MODEL
MB89096PF-G-175-BND E500IT/VP. E600VP. E700IT /VP. E800EE/EG/IT/VC MODEL
IC303
RESET/POWER FAIL
IC305
REMOTE CONTROL RECEIVER
IC301
EEP ROM
Q301, 302 LED DRIVER
S301 ON/STANDBY
S302 EJECT
OPERATING SWITCH BLOCK
EXCEPT E600 MODEL
CN304 4P
A/D 3
0 5V
A/D 2
0 GND
RF CHANNEL
TV/VTR
PROGRAM
INPUT SELECTOR
EASY SET UP
QUICK TIMER
TAPE SPEED (SP/LP)
VPS
E600VP MODEL
CN303 14P
ASURA RESET
POWER CONT 2
LED D CS
A/D 4
-30V
A/D 5
A/D 6
A/D 7
SO BUS
S CLK
A/D 8
-F
+F
0 GND
TO MF-254 BOARD CN401
(See page 4-37)
E600 MODEL
COLOR SYSTEM
PAL/SECAM
AUTO NTSC
E011
ON
OFF
CN305 4P 2.0 MM
0 6V
LANC IN
LANC OUT
0 GND
CHECK PIN
VIDEO
L
R
AUDIO
LINE IN 2
J301
①
②

no mark : REC/PB mode (SP mode)
( ) : REC mode (SP mode)
< > : PB mode (SP mode)

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡≫	➡

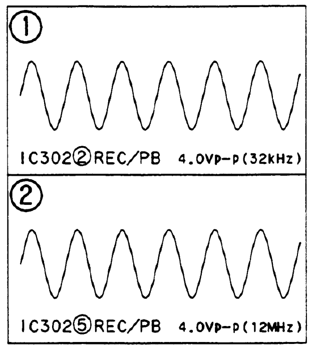


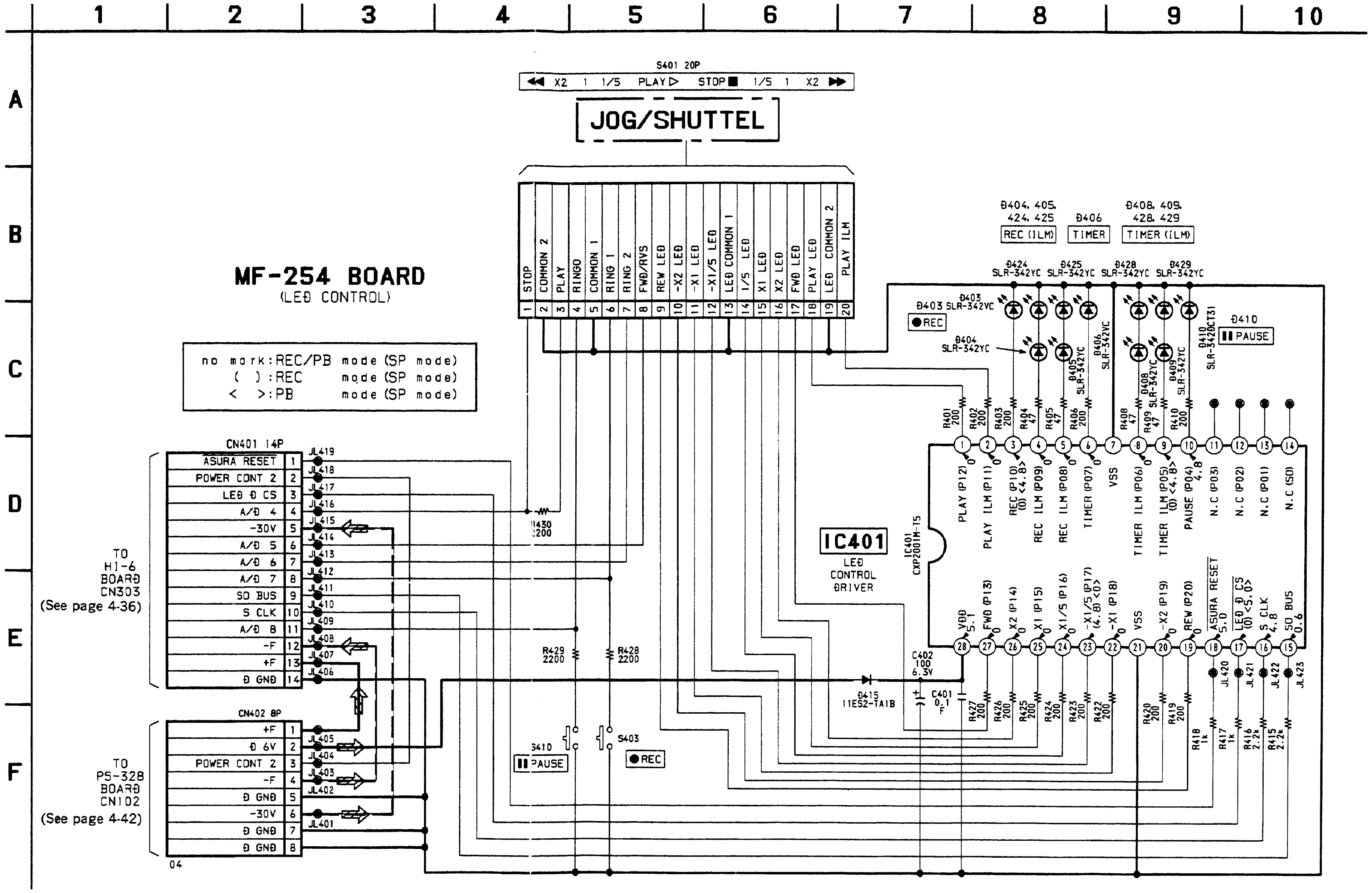
22

RATING
ITCH
OCK

4-37)

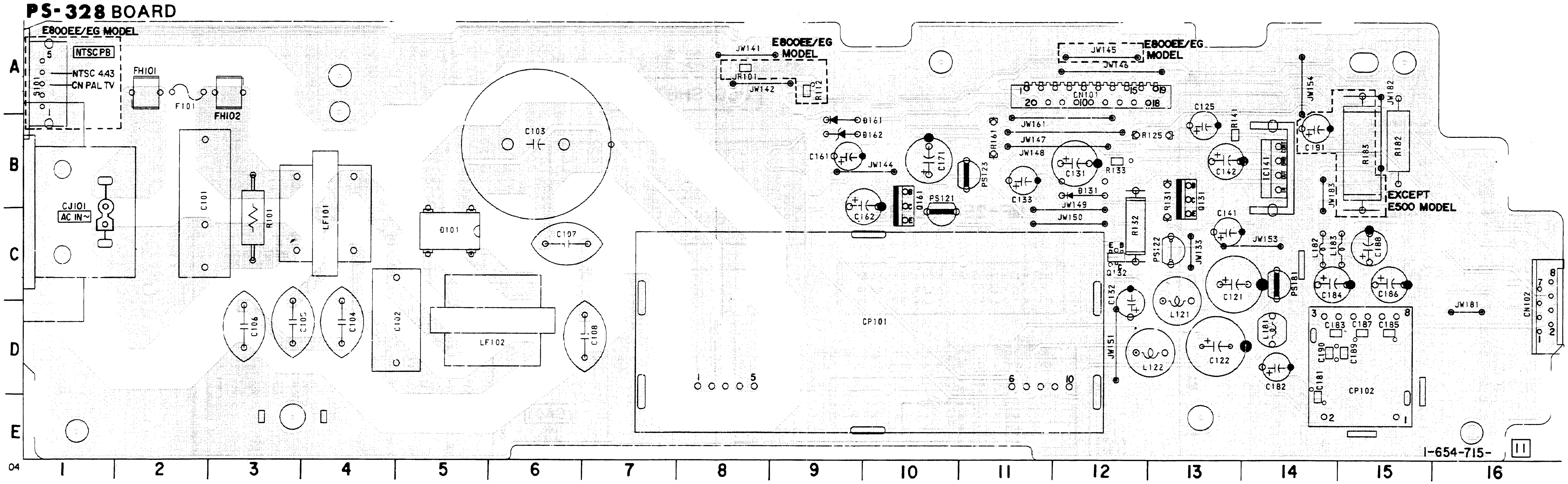
HI-6 BOARD



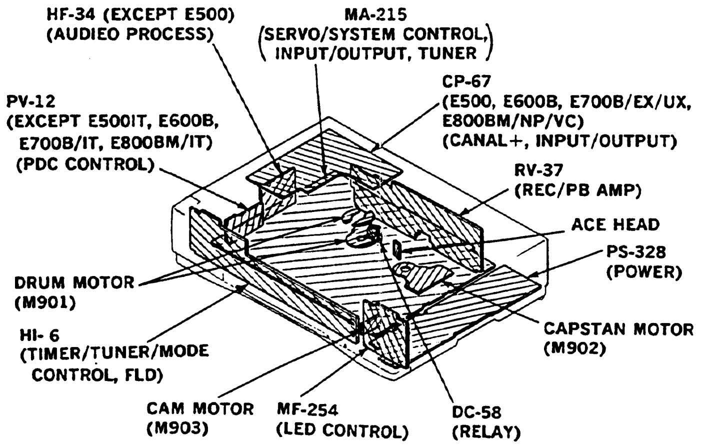

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
S401 20P
◀◀ X2 1 1/5 PLAY▷ STOP■ 1/5 1 X2 ▶▶
JOG/SHUTTEL
STOP
COMMON 2
PLAY
RINGO
COMMON 1
RING 1
RING 2
FWD/RVS
REW LED
-X2 LED
-X1 LED
-X1/5 LED
LED COMMON 1
1/5 LED
X1 LED
X2 LED
FWD LED
PLAY LED
LED COMMON 2
PLAY ILM
MF-254 BOARD
(LED CONTROL)
no mark:REC/PB mode (SP mode)
( ):REC mode (SP mode)
< >:PB mode (SP mode)
D404, 405, 424, 425
REC (ILM)
D406
TIMER
D408, 409, 428, 429
TIMER (ILM)
D424 SLR-342YC
D425 SLR-342YC
D428 SLR-342YC
D429 SLR-342YC
D403 SLR-342YC
D403
●REC
D404 SLR-342YC
D405 SLR-342YC
D406 SLR-342YC
D408 SLR-342YC
D409 SLR-342YC
D410 SLR-342OCT31
D410
II PAUSE
CN401 14P
ASURA RESET
POWER CONT 2
LED D CS
A/D 4
-30V
A/D 5
A/D 6
A/D 7
SO BUS
S CLK
A/D 8
-F
+F
D GND
TO HI-6 BOARD CN303 (See page 4-36)
CN402 8P
+F
D 6V
POWER CONT 2
-F
D GND
-30V
D GND
D GND
TO PS-328 BOARD CN102 (See page 4-42)
JL401
JL402
JL403
JL404
JL405
JL406
JL407
JL408
JL409
JL410
JL411
JL412
JL413
JL414
JL415
JL416
JL417
JL418
JL419
R430 2200
R429 2200
R428 2200
S410
II PAUSE
S403
●REC
IC401
LED CONTROL DRIVER
IC401 CXP2001M-15
PLAY (P12)
PLAY ILM (P11)
REC (P10) (0) <4.8>
REC ILM (P09)
REC ILM (P08)
TIMER (P07)
VSS
TIMER ILM (P06)
TIMER ILM (P05) (0) <4.8>
PAUSE (P04) 4.8
N.C (P03)
N.C (P02)
N.C (P01)
N.C (S0)
VDD 5.1
FWD (P13)
X2 (P14)
X1 (P15)
X1/5 (P16)
-X1/5 (P17) (4.8) <0>
-X1 (P18)
VSS
-X2 (P19)
REW (P20)
ASURA RESET 5.0
LED D CS (0) <5.0>
S CLK 4.8
SO BUS 0.6
R401 200
R402 200
R403 200
R404 47
R405 47
R406 200
R408 47
R409 47
R410 200
R427 200
R426 200
R425 200
R424 200
R423 200
R422 200
R420 200
R419 200
R418 1k
R417 1k
R416 2.2k
R415 2.2k
JL420
JL421
JL422
JL423
C402 100 6.3V
C401 0.1 F
D415 11ES2-TA1B
04

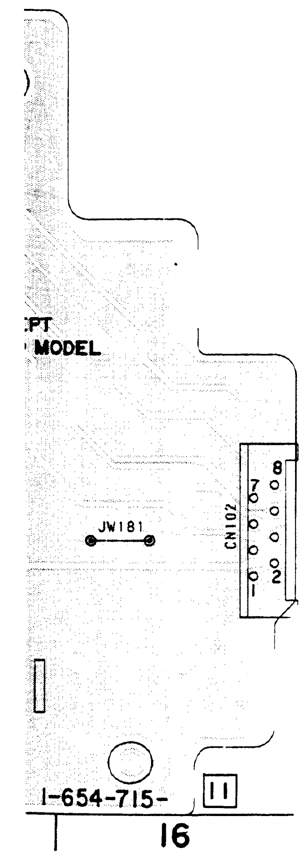
PS-328 (POWER) PRINTED WIRING BOARD

— Ref. No. PS-328 BOARD : 3,000 series —


PS-328 BOARD
E800EE/EG MODEL
NTSC PB
NTSC 4.43
CN PAL TV
S101
FH101
F101
FH102
CJ101
AC IN~
C101
R101
LF101
C103
D101
C107
C106
C105
C104
C102
LF102
C108
CP101
JW141
E800EE/EG MODEL
JR101
JW142
R112
D161
D162
C161
JW144
C162
Q161
PS121
C171
PS123
R161
JW145
JW143
E800EE/EG MODEL
CN101
JW161
JW147
JW148
R125
C131
R133
D131
C133
JW149
JW150
R132
R131
Q131
PS122
Q132
JW133
C152
JW151
L121
L122
C121
C122
C125
R141
C142
IC141
C141
JW153
PS181
JW154
C191
R183
R182
JW182
JW183
EXCEPT E500 MODEL
L182
L183
C188
C184
C186
L181
C182
C183
C187
C185
C190
C189
C181
CP102
JW181
CN102
1-654-715-
11
A
B
C
D
E
04
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

PS-328 BOAR	
CN101	B-1
CN102	C-1
D101	C-5
D131	B-1
D161	B-9
D162	B-9
IC141	B-1
Q131	B-1
Q132	D-1
Q161	C-1

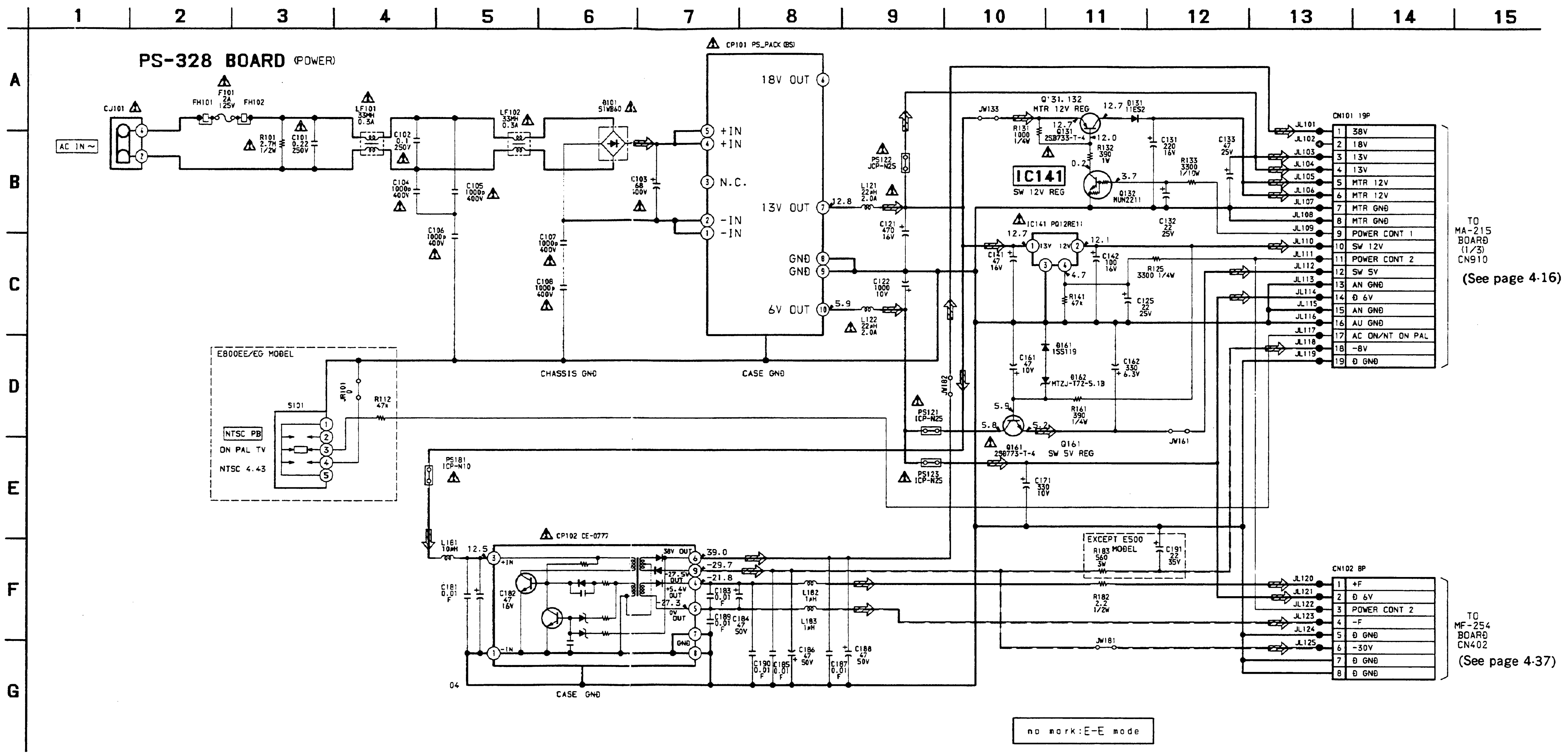

HF-34 (EXCEPT E500)
(AUDIEO PROCESS)
MA-215
(SERVO/SYSTEM CONTROL, INPUT/OUTPUT, TUNER)
CP-67
(E500, E600B, E700B/EX/UX, E800BM/NP/VC)
(CANAL+, INPUT/OUTPUT)
PV-12
(EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)
(PDC CONTROL)
RV-37
(REC/PB AMP)
ACE HEAD
PS-328
(POWER)
DRUM MOTOR
(M901)
HI-6
(TIMER/TUNER/MODE CONTROL, FLD)
CAPSTAN MOTOR
(M902)
CAM MOTOR
(M903)
MF-254
(LED CONTROL)
DC-58
(RELAY)


PT
MODEL
JW181
CN102
8
7
2
1
1-654-715-
11
16

PS-328 BOARD	
CN101	B-12
CN102	C-16
D101	C-5
D131	B-12
D161	B-9
D162	B-9
IC141	B-14
Q131	B-13
Q132	D-12
Q161	C-10

PS-328 (POWER) SCHEMATIC DIAGRAM

— Ref. No. PS-328 BOARD : 3,000 series —


1
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7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
PS-328 BOARD (POWER)
CJ101
AC IN ~
F101 2A 125V
FH101
FH102
R101 2.7M 1/2W
C101 0.22 250V
LF101 33mH 0.3A
C102 0.1 250V
C104 1000p 400V
C105 1000p 400V
C106 1000p 400V
LF102 33mH 0.3A
D101 S1WB60
C103 68 400V
C107 1000p 400V
C108 1000p 400V
CP101 PS_PACK (BS)
18V OUT
+IN
+IN
N.C.
-IN
-IN
13V OUT
GND
GND
6V OUT
12.8
5.9
L121 22μH 2.0A
L122 22μH 2.0A
PS122 ICP-N25
C121 470 16V
C122 1000 10V
JW133
Q131, 132 MTR 12V REG
12.7
D131 11ES2
R131 1000 1/4W
Q131 2SB733-T-4
12.0
R132 390 1W
0.2
C131 220 16V
R133 3300 1/10W
C133 47 25V
IC141
SW 12V REG
3.7
Q132 MUN2211
C132 22 25V
IC141 PQ12RE11
12.7
13V
12V
12.1
C141 47 16V
C142 100 16V
4.7
R125 3300 1/4W
R141 47k
C125 22 25V
D161 1SS119
C161 47 10V
D162 MTZJ-T72-5.1B
C162 330 6.3V
R161 390 1/4W
5.8
5.2
Q161 2SB773-T-4
Q161 SW 5V REG
JW161
JW182
PS121 ICP-N25
PS123 ICP-N25
C171 330 10V
E800EE/EG MODEL
S101
NTSC PB
ON PAL TV
NTSC 4.43
R101
R112 47k
CHASSIS GND
CASE GND
PS181 ICP-N10
L161 10μH
12.5
CP102 CE-0777
+IN
-IN
38V OUT
-27.5V OUT
+5.4V OUT
0V OUT
GND
39.0
-29.7
-21.8
27.3
C181 0.01 F
C182 47 16V
C183 0.01 F
C184 0.01 F 50V
C189
L182 1mH
L183 1mH
C186 47 50V
C188 47 50V
C190 0.01 F
C185 0.01 F
C187 0.01 F
EXCEPT E500 MODEL
R183 560 3W
C191 22 35V
R182 2.2 1/2W
JW181
04
CASE GND
CN101 19P
JL101
JL102
JL103
JL104
JL105
JL106
JL107
JL108
JL109
JL110
JL111
JL112
JL113
JL114
JL115
JL116
JL117
JL118
JL119
1 38V
2 18V
3 13V
4 13V
5 MTR 12V
6 MTR 12V
7 MTR GND
8 MTR GND
9 POWER CONT 1
10 SW 12V
11 POWER CONT 2
12 SW 5V
13 AN GND
14 D 6V
15 AN GND
16 AU GND
17 AC ON/NT ON PAL
18 -8V
19 D GND
TO MA-215 BOARD (1/3) CN910
(See page 4-16)
CN102 8P
JL120
JL121
JL122
JL123
JL124
JL125
1 +F
2 D 6V
3 POWER CONT 2
4 -F
5 D GND
6 -30V
7 D GND
8 D GND
TO MF-254 BOARD CN402
(See page 4-37)
no mark:E-E mode

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 5
REPAIR PARTS LIST

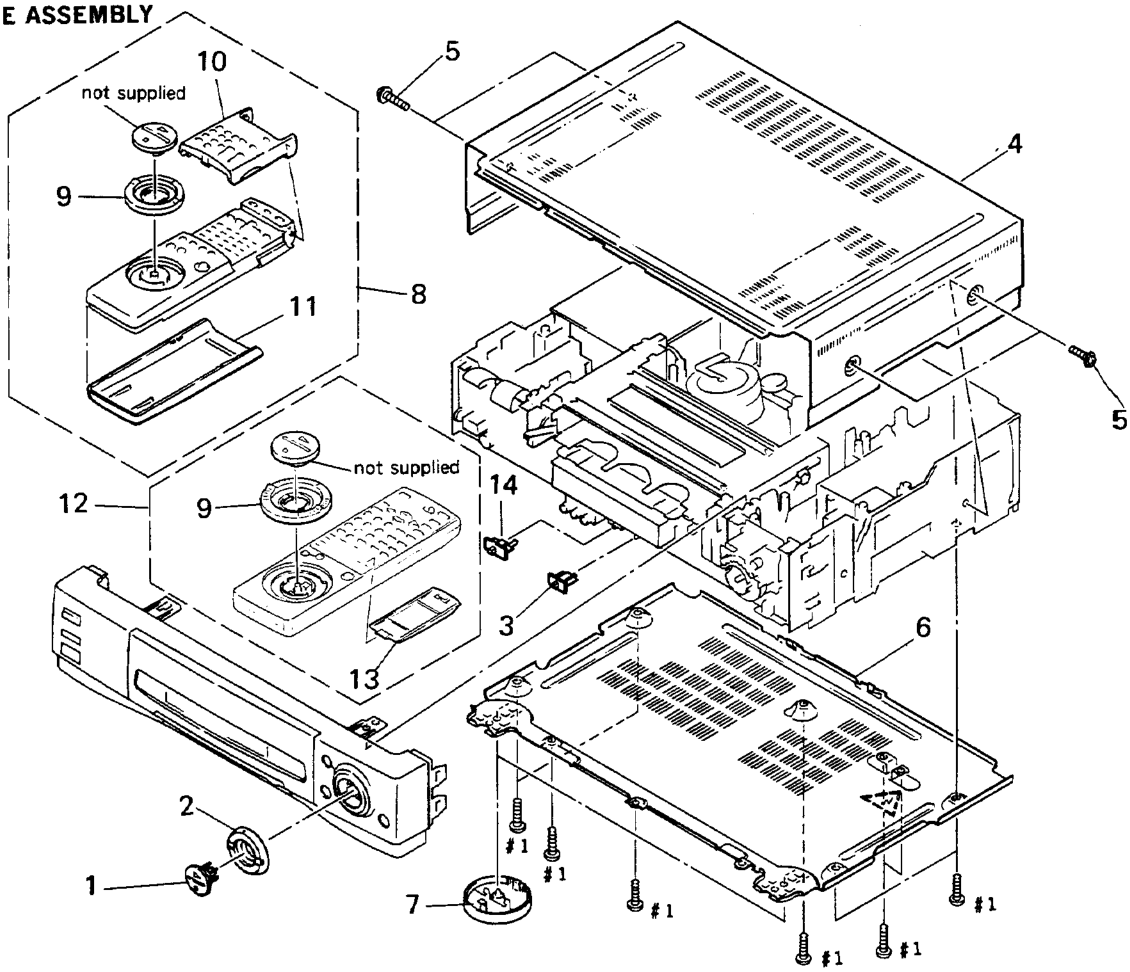
5-1. EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

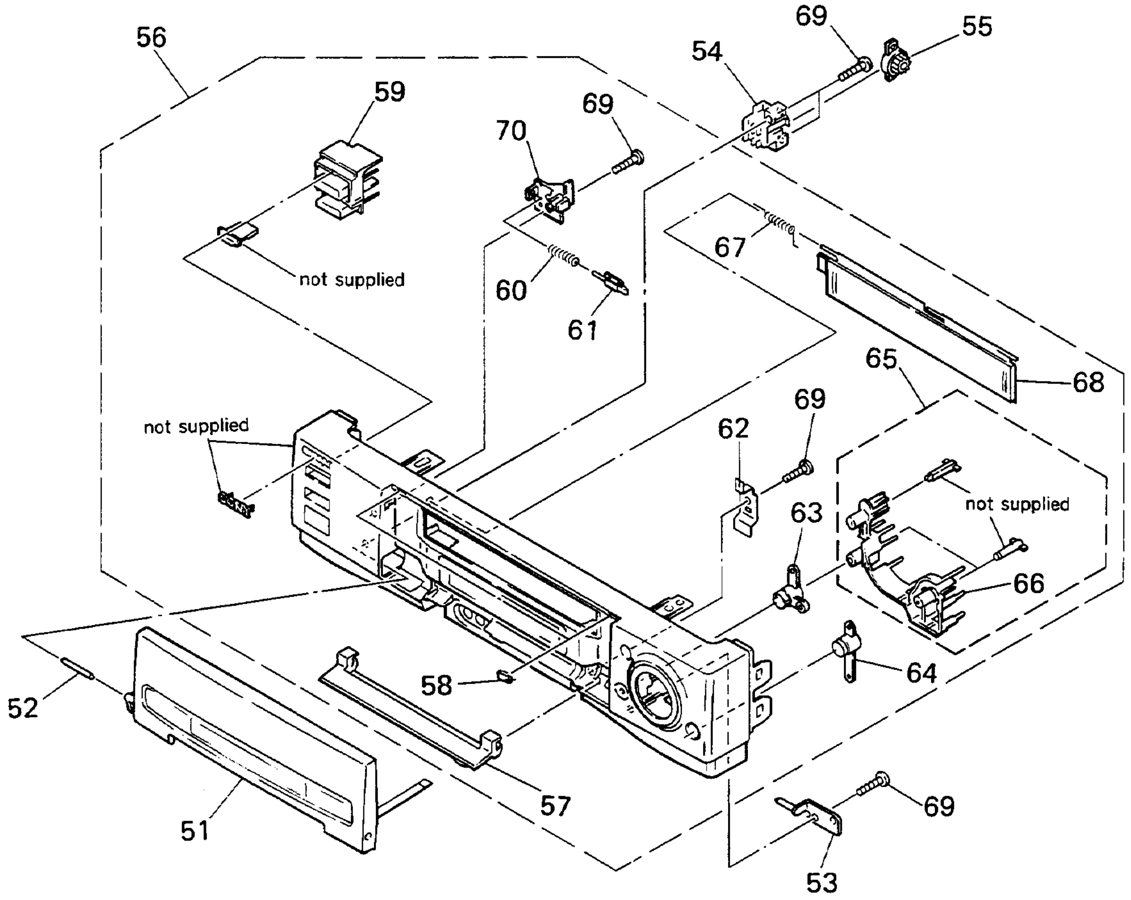
5-1-1. CASE ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	X-3944-376-1	BUTTON ASSY, FUNCTION (EXCEPT E600B, E700B, E800BM)	
1	X-3944-612-1	BUTTON ASSY, FUNCTION (E600B, E700B, E800BM)	
2	X-3944-380-1	RING ASSY, SHUTTLE	
3	3-743-636-01	KNOB, SLIDE (E600B/VP)	
3	3-960-080-11	KNOB (3P), SLIDE (EXCEPT E600B/VP)	
4	3-960-467-02	CASE, UPPER	
5	3-710-901-11	SCREW (TP3X8), CASE	
6	3-960-410-01	PLATE, BOTTOM	
7	3-960-062-11	INSULATOR	
8	1-467-950-11	REMOTE COMMANDER (RMT-V159D) (E600B, E700B)	
8	1-467-950-21	REMOTE COMMANDER (RMT-V159B) (E600VP, E700:NC1/NC2, E700AP/VP)	
8	1-467-950-31	REMOTE COMMANDER (RMT-V159A)	(E800BM)
8	1-467-950-41	REMOTE COMMANDER (RMT-V159) (E800AP/EE/EG/NC/NP/VC)	
8	1-467-950-51	REMOTE COMMANDER (RMT-V159E) (E500AP/CP/VP)	
8	1-467-954-11	REMOTE COMMANDER (RMT-V159J)	(E700 IT)
8	1-467-954-21	REMOTE COMMANDER (RMT-V159H)	(E800 IT)
8	1-467-954-31	REMOTE COMMANDER (RMT-V159K)	(E500 IT)
9	3-957-513-11	RING, SHUTTLE	
10	3-708-969-01	COVER, REMOTE CONTROL (EXCEPT E500UX, E600B, E700B/EX/UX, E800BM)	
10	3-708-970-01	COVER, REMOTE CONTROL (E600B, E700B, E800BM)	
11	3-708-816-21	COVER, SLIDE (EXCEPT E500UX, E700EX/UX)	
12	1-467-965-11	REMOTE COMMANDER (RMT-V163)	(E700EX/UX)
12	1-467-965-21	REMOTE COMMANDER (RMT-V163A)	(E500UX)
13	3-708-817-01	COVER, BATTERY (E500UX, E700EX/UX)	
14	3-743-636-01	KNOB, SLIDE (E600)	

5-1-2. FRONT PANEL ASSEMBLY

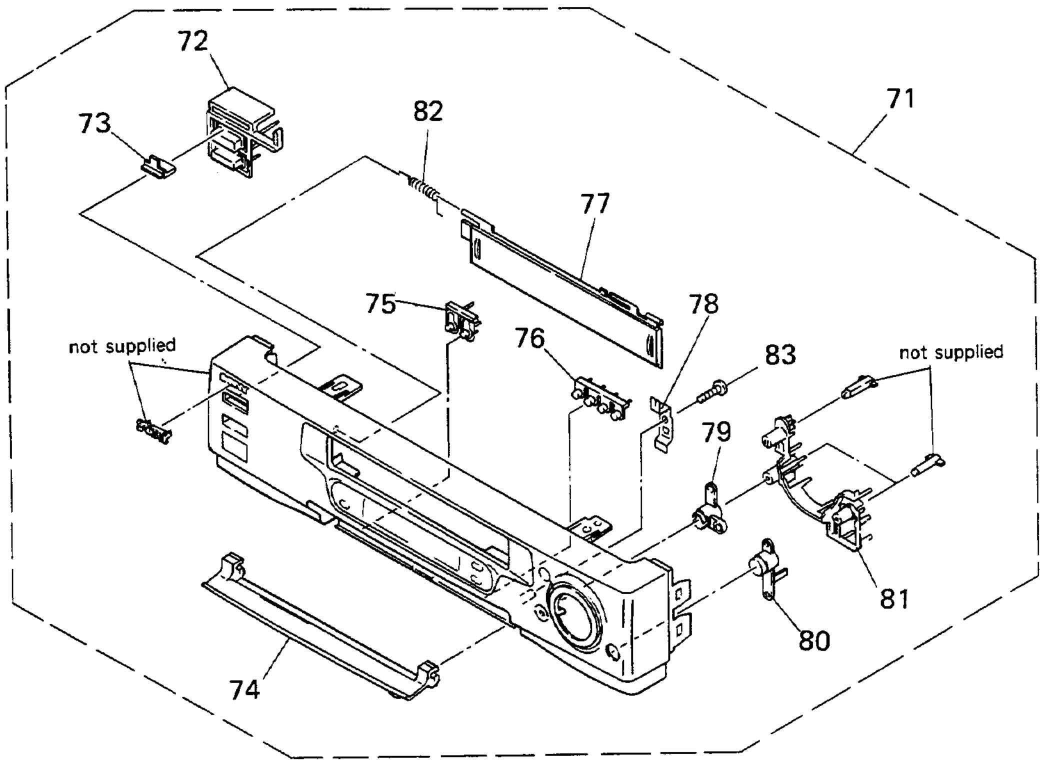
EXCEPT SLV-E600B/VP MODEL



Ref. No.	Part No.	Description	Remark
51	1-467-945-11	SWITCH BLOCK, CONTROL (E800VC)	
51	1-467-945-21	SWITCH BLOCK, CONTROL (E800BM)	
51	1-467-945-31	SWITCH BLOCK, CONTROL (E800NP)	
51	1-467-945-41	SWITCH BLOCK, CONTROL (E800NC)	
51	1-467-945-51	SWITCH BLOCK, CONTROL (E800AP)	
51	1-467-945-71	SWITCH BLOCK, CONTROL (E800EE/EG)	
51	1-467-945-81	SWITCH BLOCK, CONTROL (E800IT)	
51	1-467-945-91	SWITCH BLOCK, CONTROL (E700EX/UX)	
51	1-467-946-11	SWITCH BLOCK, CONTROL (E500UX)	
51	1-467-946-21	SWITCH BLOCK, CONTROL (E500VP)	
51	1-467-946-31	SWITCH BLOCK, CONTROL (E500AP)	
51	1-467-946-41	SWITCH BLOCK, CONTROL (E700B)	
51	1-467-946-51	SWITCH BLOCK, CONTROL (E500CP)	
51	1-467-946-61	SWITCH BLOCK, CONTROL (E500IT)	
51	1-467-946-71	SWITCH BLOCK, CONTROL (E700:NC1/NC2)	
51	1-467-946-81	SWITCH BLOCK, CONTROL (E700IT/VP)	
51	1-473-003-11	SWITCH BLOCK, CONTROL (E700AP)	
* 52	3-960-077-11	SHAFT (LEFT), FULCRUM	
53	X-3944-614-1	PLATE (RIGHT) ASSY, FULCRUM	
* 54	3-960-076-11	PLATE (LEFT), FULCRUM, DOOR	
55	3-961-745-01	DAMPER, OIL	
56	X-3944-626-1	PANEL ASSY, FRONT (E700:NC1/NC2, E700AP/EX/IT/UX/VP)	
56	X-3944-631-1	PANEL ASSY, FRONT (E700B)	
56	X-3944-803-1	PANEL ASSY, FRONT (E800AP/IT/NC/NP/VC)	
56	X-3944-811-1	PANEL ASSY, FRONT (E800BM)	

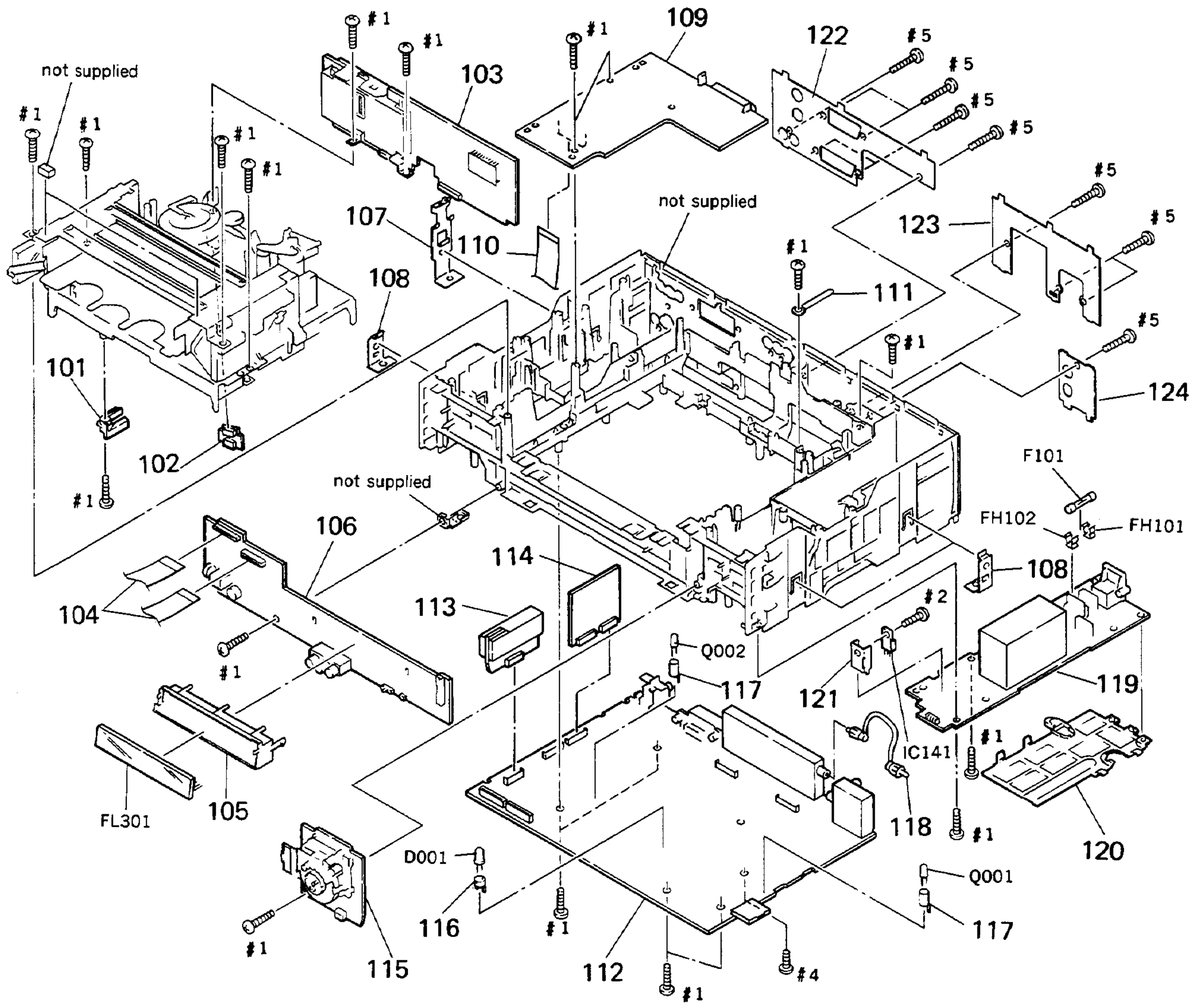
Ref. No.	Part No.	Description	Remark
56	X-3944-812-1	PANEL ASSY, FRONT (E800EE/EG)	
56	X-3944-887-1	PANEL ASSY, FRONT (E500)	
57	3-961-606-01	DOOR, JACK (E800AP/IT/NC/NP/VC)	
57	3-961-606-11	DOOR, JACK (E700:NC1/NC2, E700AP/EX/IT/UX/VP)	
57	3-961-606-21	DOOR, JACK (E700B)	
57	3-961-606-31	DOOR, JACK (E800BM)	
57	3-961-606-41	DOOR, JACK (E800EE/EG)	
57	3-961-606-51	DOOR, JACK (E500)	
58	9-911-839-XX	STOPPER	
59	3-957-389-01	BUTTON, POWER/EJECT	
60	3-957-388-01	SPRING, COMPRESSION	
61	3-944-564-01	CLAW, LOCK	
* 62	3-963-025-01	SPRING, DOOR LOCK	
* 63	3-960-090-11	LENS, TR ILLUMINATION	
* 64	3-960-089-11	LENS, REC ILLUMINATION	
65	X-3944-615-1	TIMER ASSY (A7)	
* 66	3-960-086-01	BASE (L), TR	
67	3-953-432-01	SPRING (GE), FL	
68	3-960-094-31	DOOR, CASSETTE (E700:NC1/NC2, E700AP/EX/IT/UX/VP, E800AP/EE/EG/IT/NC/NP/VC)	
68	3-960-094-41	DOOR, CASSETTE (E700B, E800BM)	
68	3-960-094-61	DOOR, CASSETTE (E500)	
69	4-921-277-41	SCREW (B2.6X8), TAPPING, BIND	
* 70	3-957-312-11	HOLDER, LOCK CLAW (E700)	
* 70	3-957-548-11	HOLDER, LOCK CLAW (E500, E800)	

SLV-E600B/VP MODEL



Ref. No.	Part No.	Description	Remark
71	X-3944-632-1	PANEL ASSY, FRONT (E600B)	
71	X-3944-691-1	PANEL ASSY, FRONT (E600VP)	
72	3-957-237-01	BUTTON, POWER/EJECT	
73	3-946-611-01	TIP, POWER BUTTON	
74	3-960-051-11	DOOR, JACK (E600B)	
74	3-960-051-61	DOOR, JACK (E600VP)	
75	3-961-932-11	BUTTON, RF	
76	3-960-524-01	BUTTON, QUICK TIMER (E600B)	
76	3-960-524-11	BUTTON, QUICK TIMER (E600VP)	
77	3-960-094-01	DOOR, CASSETTE (E600VP)	
77	3-960-094-51	DOOR, CASSETTE (E600B)	
* 78	3-960-556-01	SPRING, DOOR LOCK	
* 79	3-960-090-01	LENS, TR ILLUMINATION	
* 80	3-960-089-01	LENS, REC ILLUMINATION	
* 81	3-960-049-01	BASE, TR	
82	3-953-432-01	SPRING (GE), FL	
83	4-921-277-41	SCREW (B2.6X8), TAPPING, BIND	

5-1-3. CHASSIS ASSEMBLY


#1
#1
103
#1
109
122
#5
#5
#5
#5
not supplied
#1
#1
#1
#1
107
110
not supplied
123
#5
#5
108
#1
111
#1
#5
101
124
102
F101
#1
not supplied
FH102
FH101
106
114
108
104
113
#2
#1
Q002
117
121
119
IC141
#1
FL301
105
118
#1
120
D001
Q001
116
#1
117
#1
115
112
#4
#1

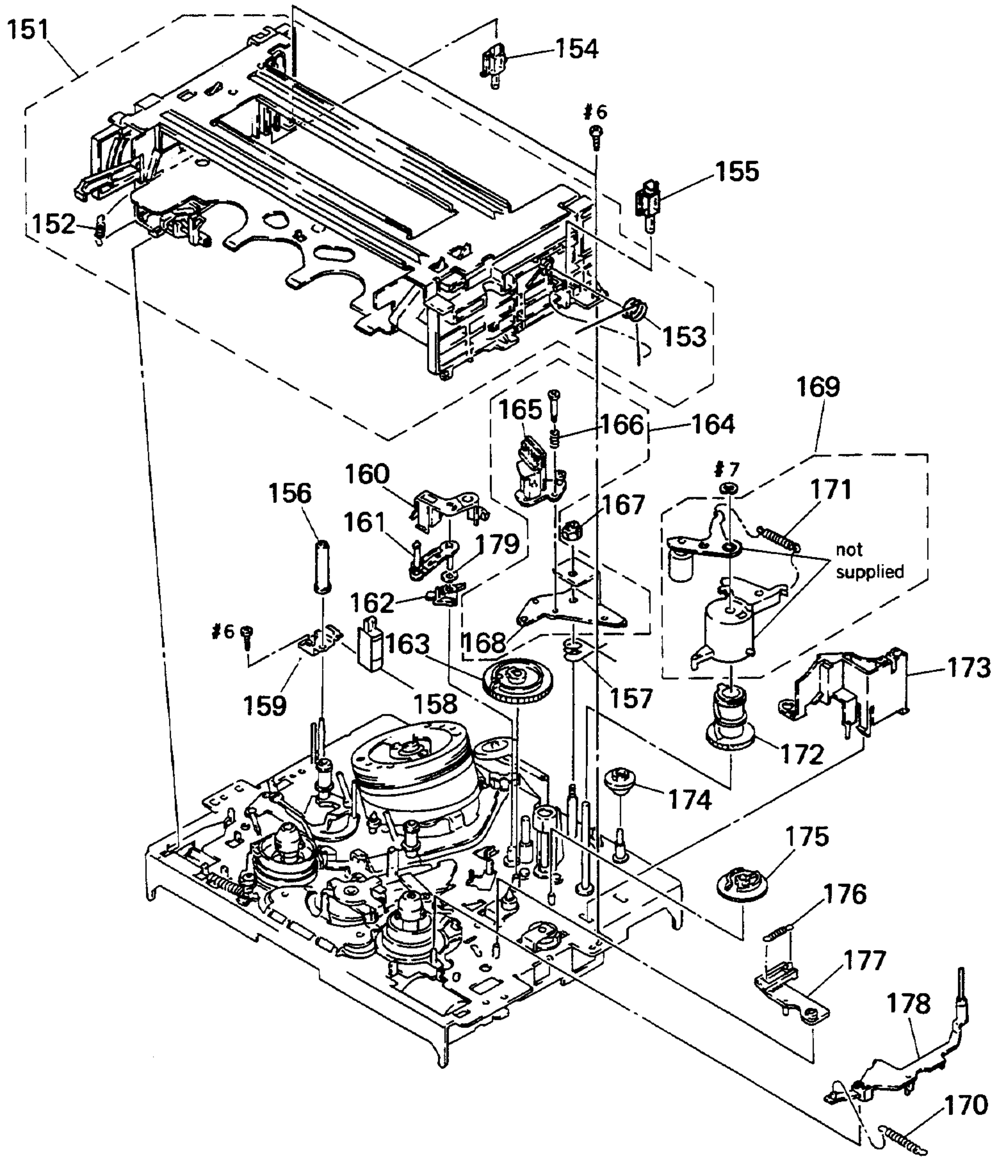
Ref. No.	Part No.	Description	Remark
* 101	3-960-067-11	HOLDER, MA	
* 102	A-6794-030-A	DC-58 BOARD, COMPLETE	
* 103	A-6782-402-A	RV-37 BOARD, COMPLETE (E600VP, E700:NC1/NC2, E700AP/EX/IT/UX/VP)	
* 103	A-6782-411-A	RV-37 BOARD, COMPLETE (E600B, E700B)	
* 103	A-6782-460-A	RV-37 BOARD, COMPLETE (E800BM)	
* 103	A-6782-463-A	RV-37 BOARD, COMPLETE (E800AP/IT/NC/NP/VC)	
* 103	A-6782-468-A	RV-37 BOARD, COMPLETE (E800EE/EG)	
* 103	A-6782-513-A	RV-37 BOARD, COMPLETE (E500)	
* 104	1-769-397-11	WIRE, FLAT TYPE 19P	
* 105	3-960-068-11	HOLDER (A), FL	
* 106	A-6782-412-A	HI-6 BOARD, COMPLETE (E600B)	
* 106	A-6782-415-A	HI-6 BOARD, COMPLETE (E700:NC1/NC2, E700B/VP)	
* 106	A-6782-453-A	HI-6 BOARD, COMPLETE (E800NC)	
* 106	A-6782-455-A	HI-6 BOARD, COMPLETE (E800NP)	
* 106	A-6782-457-A	HI-6 BOARD, COMPLETE (E800AP)	
* 106	A-6782-461-A	HI-6 BOARD, COMPLETE (E800BM)	
* 106	A-6782-464-A	HI-6 BOARD, COMPLETE (E800VC)	
* 106	A-6782-469-A	HI-6 BOARD, COMPLETE (E800EG)	
* 106	A-6782-472-A	HI-6 BOARD, COMPLETE (E800EE)	
* 106	A-6782-473-A	HI-6 BOARD, COMPLETE (E800IT)	
* 106	A-6782-510-A	HI-6 BOARD, COMPLETE (E500UX)	
* 106	A-6782-514-A	HI-6 BOARD, COMPLETE (E500VP)	
* 106	A-6782-518-A	HI-6 BOARD, COMPLETE (E500CP)	
* 106	A-6782-520-A	HI-6 BOARD, COMPLETE (E500AP)	
* 106	A-6782-522-A	HI-6 BOARD, COMPLETE (E500IT)	
* 106	A-6782-531-A	HI-6 BOARD, COMPLETE (E700UX)	
* 106	A-6782-532-A	HI-6 BOARD, COMPLETE (E700EX)	
* 106	A-6782-533-A	HI-6 BOARD, COMPLETE (E700IT)	
* 106	A-6782-534-A	HI-6 BOARD, COMPLETE (E700AP)	
* 106	A-6782-546-A	HI-6 BOARD, COMPLETE (E600VP)	
* 107	3-960-571-11	PLATE, FIXED (LARGE), BOTTOM	
* 108	3-741-992-01	STOPPER, UPPER CASE	

Ref. No.	Part No.	Description	Remark
* 109	A-6782-408-A	CP-67 BOARD, COMPLETE (E700EX/UX)	
* 109	A-6782-414-A	CP-67 BOARD, COMPLETE (E600B, E700B, E800BM/NP/VC)	
* 109	A-6782-509-A	CP-67 BOARD, COMPLETE (E500UX)	
109	A-6782-512-A	CP-67 BOARD, COMPLETE (E500AP/IT/VP)	
109	A-6782-517-A	CP-67 BOARD, COMPLETE (E500CP)	
110	1-769-355-11	CABLE, FLEXIBLE FLAT (FCP-6) (E500, E600B, E700B/EX/UX, E800BM/NP/VC)	
111	3-703-397-01	STOPPER, WIRING	
* 112	A-6782-392-A	MA-215 BOARD, COMPLETE (E700EX)	
* 112	A-6782-395-A	MA-215 BOARD, COMPLETE (E700AP)	
* 112	A-6782-396-A	MA-215 BOARD, COMPLETE (E700IT)	
* 112	A-6782-404-A	MA-215 BOARD, COMPLETE (E600VP, E700VP)	
* 112	A-6782-407-A	MA-215 BOARD, COMPLETE (E700UX)	
* 112	A-6782-413-A	MA-215 BOARD, COMPLETE (E600B, E700B)	
* 112	A-6782-416-A	MA-215 BOARD, COMPLETE (E700:NC1/NC2)	
* 112	A-6782-454-A	MA-215 BOARD, COMPLETE (E800NC)	
* 112	A-6782-456-A	MA-215 BOARD, COMPLETE (E800NP)	
* 112	A-6782-458-A	MA-215 BOARD, COMPLETE (E800AP)	
* 112	A-6782-459-A	MA-215 BOARD, COMPLETE (E800IT)	
* 112	A-6782-462-A	MA-215 BOARD, COMPLETE (E800BM)	
* 112	A-6782-465-A	MA-215 BOARD, COMPLETE (E800VC)	
* 112	A-6782-470-A	MA-215 BOARD, COMPLETE (E800EE/EG)	
* 112	A-6782-515-A	MA-215 BOARD, COMPLETE (E500AP/UX/VP)	
* 112	A-6782-519-A	MA-215 BOARD, COMPLETE (E500CP)	
* 112	A-6782-521-A	MA-215 BOARD, COMPLETE (E500IT)	
* 113	A-6782-401-A	PV-12 BOARD, COMPLETE (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)	
* 114	A-6721-595-A	HF-34 BOARD, COMPLETE (EXCEPT E500)	
115	A-6782-400-A	MF-254 BOARD, COMPLETE	
* 116	3-960-274-01	SPACER, LED	
* 117	3-960-273-01	SPACER, TOP END	
118	1-555-110-00	CABLE, PIN (EXCEPT E500)	
* 119	A-6782-405-A	PS-328 BOARD, COMPLETE (E600, E700, E800AP/BM/IT/NC/NP/VC)	
* 119	A-6782-471-A	PS-328 BOARD, COMPLETE (E800EE/EG)	
* 119	A-6782-511-A	PS-328 BOARD, COMPLETE (E500UX)	
* 119	A-6782-516-A	PS-328 BOARD, COMPLETE (E500AP/CP/IT/VP)	
* 120	3-960-066-11	INSULATOR, PS	
* 121	3-964-037-01	HEAT SINK	
* 122	3-960-463-01	PLATE, ORNAMENTAL (IO), REAR JACK (E800VC)	
* 122	3-960-463-11	PLATE, ORNAMENTAL (IO), REAR JACK (E600VP, E700:NC1/NC2, E700AP/IT/VP, E800AP/EE/EG/IT/NC)	
* 122	3-960-463-21	PLATE, ORNAMENTAL (IO), REAR JACK (E600B, E700B, E800BM)	
* 122	3-960-463-31	PLATE, ORNAMENTAL (IO), REAR JACK (E700EX/UX)	
* 122	3-960-463-41	PLATE, ORNAMENTAL (IO), REAR JACK (E800NP)	
* 122	3-960-463-51	PLATE, ORNAMENTAL (IO), REAR JACK (E500AP/IT/VP)	
* 122	3-960-463-61	PLATE, ORNAMENTAL (IO), REAR JACK (E500UX)	
* 122	3-960-463-71	PLATE, ORNAMENTAL (IO), REAR JACK (E500CP)	
* 123	3-960-465-01	PLATE (PS), ORNAMENTAL, REAR (E800VC)	
* 123	3-960-465-11	PLATE (PS), ORNAMENTAL, REAR (E800IT)	
* 123	3-960-465-21	PLATE (PS), ORNAMENTAL, REAR (E800BM)	
* 123	3-960-465-31	PLATE (PS), ORNAMENTAL, REAR (E800AP)	
* 123	3-960-465-41	PLATE (PS), ORNAMENTAL, REAR (E800NP)	
* 123	3-960-465-51	PLATE (PS), ORNAMENTAL, REAR (E800NC)	
* 123	3-960-465-72	PLATE (PS), ORNAMENTAL, REAR (E800EG)	
* 123	3-960-465-82	PLATE (PS), ORNAMENTAL, REAR (E800EE)	
* 123	3-961-746-01	PLATE (PS), ORNAMENTAL REAR JACK (E700VP)	
* 123	3-961-746-11	PLATE (PS), ORNAMENTAL REAR JACK (E700IT)	
* 123	3-961-746-21	PLATE (PS), ORNAMENTAL REAR JACK (E700B)	
* 123	3-961-746-31	PLATE (PS), ORNAMENTAL REAR JACK (E700AP)	
* 123	3-961-746-41	PLATE (PS), ORNAMENTAL REAR JACK (E700:NC2)	
* 123	3-961-746-51	PLATE (PS), ORNAMENTAL REAR JACK (E700:NC1)	
* 123	3-961-746-62	PLATE (PS), ORNAMENTAL REAR JACK (E700UX)	
* 123	3-961-746-72	PLATE (PS), ORNAMENTAL REAR JACK (E700EX)	
* 123	3-961-752-01	PLATE (PS), ORNAMENTAL REAR JACK (E600B)	
* 123	3-961-752-11	PLATE (PS), ORNAMENTAL REAR JACK (E500VP)	
* 123	3-961-752-21	PLATE (PS), ORNAMENTAL REAR JACK (E500IT)	
* 123	3-961-752-31	PLATE (PS), ORNAMENTAL REAR JACK (E500CP)	
* 123	3-961-752-41	PLATE (PS), ORNAMENTAL REAR JACK (E500AP)	
* 123	3-961-752-52	PLATE (PS), ORNAMENTAL REAR JACK (E500UX)	
* 123	3-961-752-61	PLATE (PS), ORNAMENTAL REAR JACK (E600VP)	
* 124	3-960-464-01	PLATE, ORNAMENTAL (TU), REAR (EXCEPT E500, E600B, E700B, E800BM)	
* 124	3-960-464-11	PLATE, ORNAMENTAL (TU), REAR JACK (E600B, E700B, E800BM)	
* 124	3-960-464-21	PLATE, ORNAMENTAL (TU), REAR JACK (E500)	
D001	8-719-048-26	DIODE GL528V1 (TAPE TOP/END)	
⚠F101	1-576-228-11	FUSE (H.B.C.) (250V/2A)	
FH101	1-533-293-11	FUSE HOLDER	
FH102	1-533-293-11	FUSE HOLDER	
FL301	1-517-313-11	INDICATOR TUBE, FLUORESCENT (EXCEPT E600B, E700B, E800BM)	
FL301	1-517-358-11	TUBE, FLUORESCENT INDICATOR (E600B, E700B, E800BM)	
IC141	8-759-189-48	IC PQ12RE11	
Q001	8-729-025-92	PHOTO TRANSISTOR PT380F (TAPE TOP)	
Q002	8-729-025-92	PHOTO TRANSISTOR PT380F (TAPE END)	

Note.
NC1 : Belgium, North European
NC2 : Spanish, Portugal

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-1-4. MECHANISM DECK ASSEMBLY 1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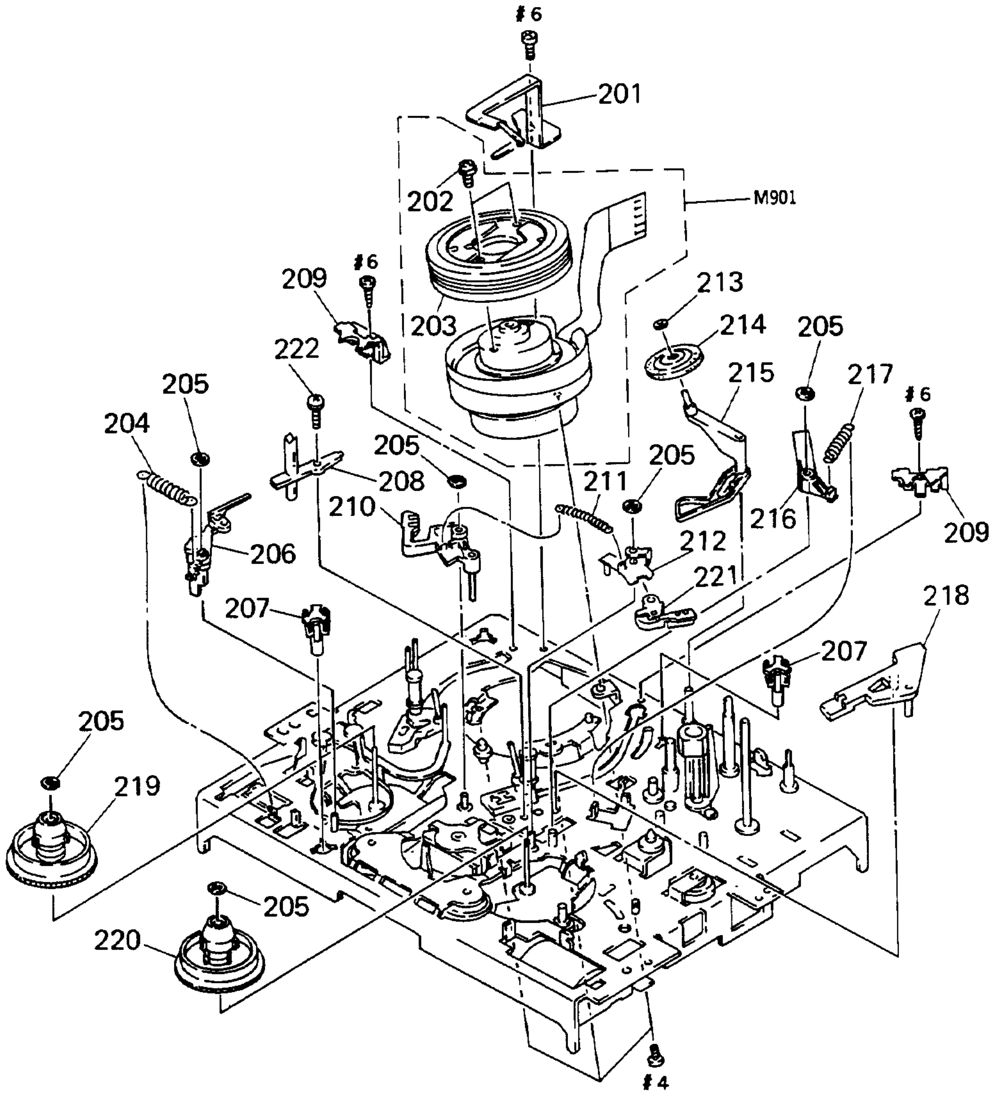
Ref. No.	Part No.	Description	Remark
151	A-6751-496-A	FL BLOCK ASSY	
152	3-958-467-01	SPRING, TENSION COIL	
153	3-958-195-01	SPRING, TORSION	
154	3-960-215-01	PLATE, LIGHT GUIDE, END SENSOR	
155	3-960-216-01	PLATE, LIGHT GUIDE, TOP SENSOR	
156	X-3944-460-1	ROLLER ASSY, TG2	
157	3-958-487-01	SPRING, (AEC) TORSION COIL	
158	1-500-144-11	HEAD, FE	
159	3-959-841-01	HOLDER, FEH	
160	3-962-298-01	BRACKET, TG7 TAPE	
161	X-3944-797-1	TG8 ASSY	
162	3-958-421-01	HOLDER, TG8	
163	3-958-152-01	GEAR, TG8	
164	A-6736-103-A	ACE BLOCK ASSY (INCLUDING AC-101 BOARD)	
165	1-506-485-11	PIN, CONNECTOR 6P	
166	3-960-439-01	SPRING (ACE), COMPRESSION	
167	3-942-867-01	NUT, AC HEIGHT ADJUSTMENT	
168	3-958-491-01	BASE, ACE	
169	A-6746-072-A	PRESS BLOCK ASSY, PINCH	
170	3-958-505-01	SPRING (SOFT BRAKE T), TENSION	
171	3-958-455-01	SPRING (PINCH), TENSION	
172	3-958-151-01	GEAR, ELEVATOR	
173	3-958-454-01	OPNER, LID	
174	3-958-501-01	SCREW, ACE ADJUSTMENT	
175	3-958-153-01	GEAR, PRESS	
176	3-958-462-01	SPRING (RVS BRAKE), TENSION	
177	X-3943-885-1	ARM ASSY, RVS BRAKE	
178	X-3943-882-1	BRAKE (T) ASSY, SOFT	
179	3-701-438-11	WASHER, 2.5	

5-1-5. MECHANISM DECK ASSEMBLY 2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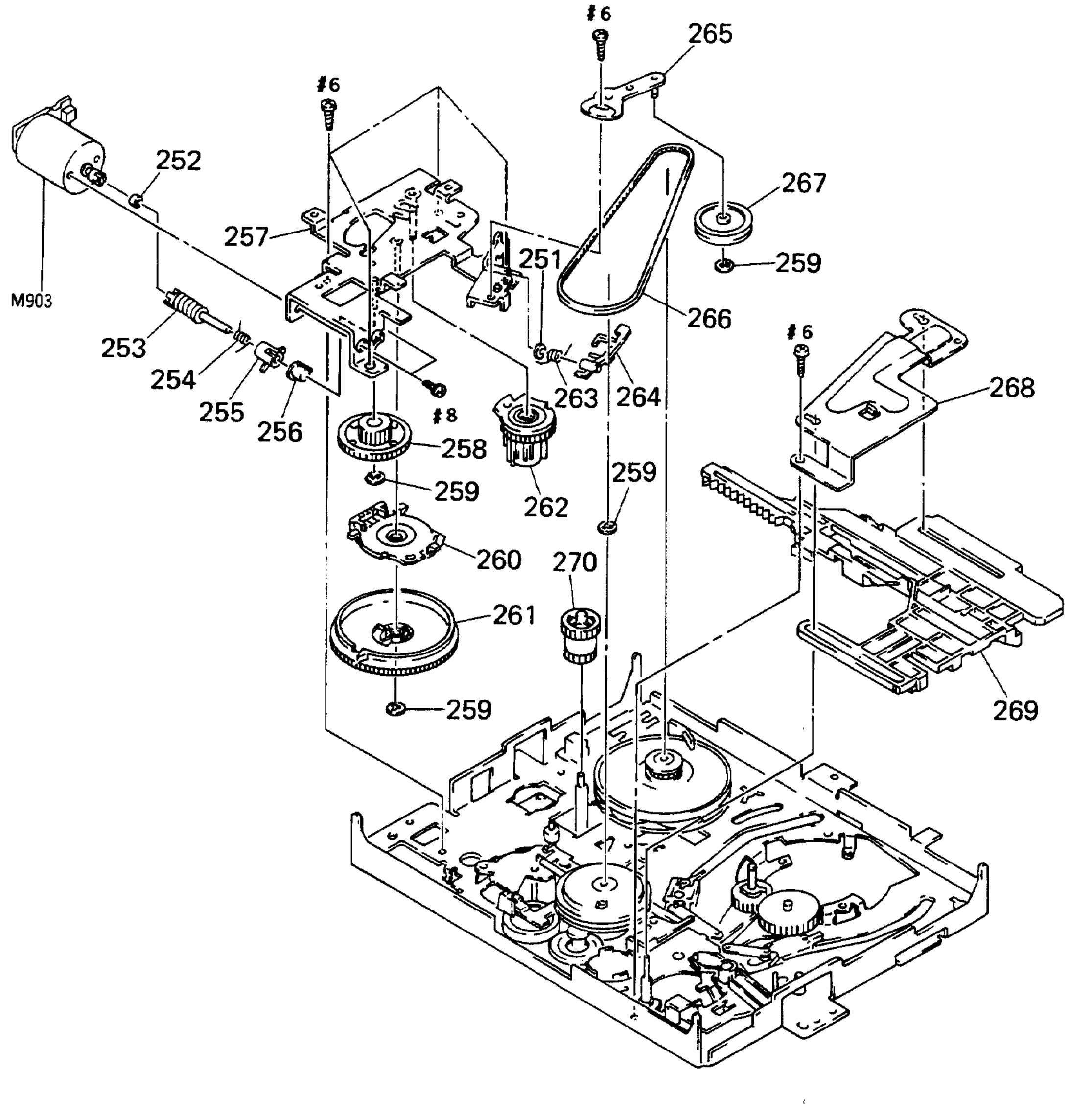
Ref. No.	Part No.	Description	Remark
201	X-3943-899-1	GROUND ASSY, SHAFT	
202	2-643-205-01	SCREW (PSW) 3X8	
203	8-848-621-02	DRUM ASSY, ROTARY UPPER (DZR-54-R) (E500)	
203	8-848-622-02	DRUM ASSY, ROTARY UPPER (DZR-66-R) (EXCEPT E500)	
204	3-958-443-01	SPRING, STRETCH COIL SPRING	
205	3-669-595-00	WASHER (2), STOPPER	
206	3-958-450-01	BRAKE (S), SOFT	
207	3-958-390-01	SHAFT, PC BOARD	
208	3-958-391-01	PLATE, LIGHT GUIDE, LED	
209	3-958-389-01	CATCHER	
210	X-3944-599-1	BRAKE (S) ASSY, MAIN	
211	3-958-517-01	SPRING, TENSIONCOIL	
212	X-3944-628-1	BRAKE (T) ASSY, MAIN	
213	3-321-393-01	WASHER, STOPPER	
214	X-3944-363-1	ROLLER ASSY, HC	
215	X-3943-896-1	ARM ASSY, HC	
216	3-960-139-01	ARM, NEUTRALITY	
217	3-958-535-01	SPRING, TENSION	
218	3-960-138-01	ARM, PENDULUM COMPULSION	
219	X-3943-902-1	TABLE, REEL (S) ASSY	
220	X-3943-903-1	TABLE, REEL (T) ASSY	
221	X-3944-598-1	CAP ASSY, MAIN BRAKE	
222	3-961-441-01	SCREW (PS 3X8)	
M901	8-848-618-12	DRUM ASSY (DZH-54A-R) (E500)	
M901	8-848-619-12	DRUM ASSY (DZH-66A-R) (EXCEPT E500)	

5-1-6. MECHANISM DECK ASSEMBLY 3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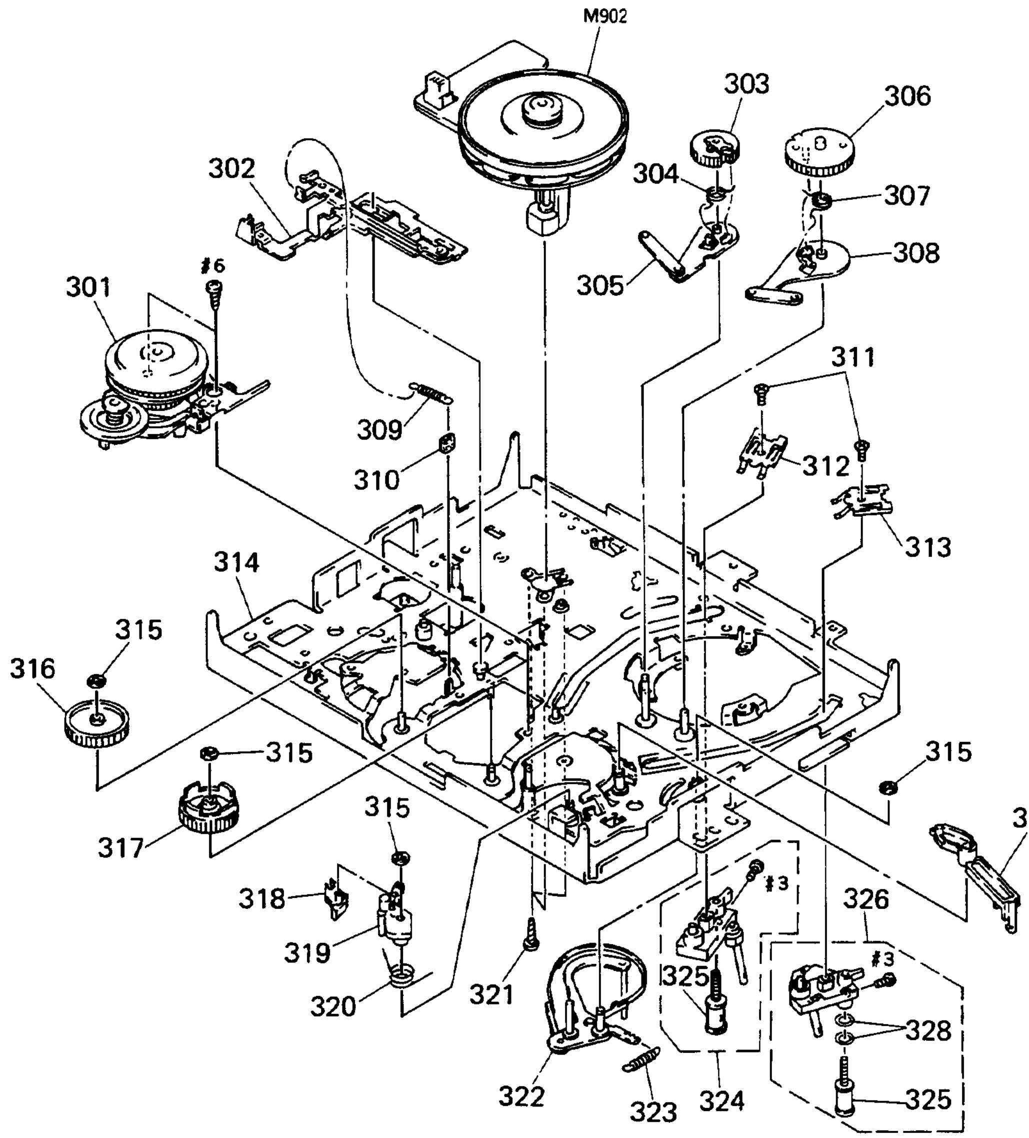
Ref. No.	Part No.	Description	Remark
251	3-701-439-21	WASHER	
252	3-959-840-01	RUBBER, JOINT	
253	3-958-159-01	WORM	
254	3-958-460-01	SPRING, ONE-WAY	
255	3-958-160-01	PROPELLOR	
256	3-958-155-01	BEARING, CAM MOTOR	
* 257	X-3943-884-1	CHASSIS ASSY, CAM MOTOR	
258	3-958-157-01	WHEEL, WORM	
259	3-669-595-00	WASHER (2), STOPPER	
260	1-762-076-11	SWITCH, ROTARY	
261	3-958-161-01	GEAR, CAM	
262	3-958-156-01	GEAR, FL DRIVING	
263	3-958-445-01	SPRING, TORSIONCOIL (CAP BRAKE)	
264	X-3943-888-1	BRAKE ASSY, CAP	
265	X-3943-889-1	ARM ASSY, TENSION VEHICLE	
266	3-958-361-01	BELT, TIMING	
267	3-958-448-01	WHEEL, TENSION	
* 268	3-959-763-01	RETAINER	
269	3-958-163-01	SLIDER, MAIN	
270	3-958-162-01	GEAR, UPPER/LOWER COMMUNICATION	
M903	X-3943-883-1	MOTOR ASSY, CAM	

5-1-7. MECHANISM CHASSIS ASSEMBLY 4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Ref. No.	Part No.	Description	Remark
301	A-6739-102-A	RKB BLOCK ASSY	
302	X-3943-897-1	LEVER ASSY, TRIGGER	
303	3-958-485-01	GEAR (T), LOADING	
304	3-960-449-01	SPRING (T), TORSION COIL	
305	X-3943-891-1	LEVER (T) ASSY, LOADING	
306	3-958-476-01	GEAR (S), LOADING	
307	3-960-448-01	SPRING (S), TORSION COIL	
308	X-3943-890-1	LEVER (S) ASSY, LOADING	
309	3-958-529-01	SPRING (MOMENT), TENSION	
310	3-959-840-01	RUBBER, JOINT	
311	3-960-720-01	SCREW	
312	3-960-688-01	SPRING, LEAF (T), LOADING	
313	3-960-687-01	SPRING, LEAF (S), LOADING	
* 314	X-3943-874-1	CHASSIS ASSY, MECHANICAL	
315	3-669-595-00	WASHER (2), STOPPER	
316	3-962-960-01	GEAR (T-K), IDLER	
317	3-962-959-01	GEAR (S-K), IDLER	
318	3-958-533-01	CLAW, S WINDING	
319	3-958-532-01	ARM, S WINDING	
320	3-958-534-01	SPRING, TORSION	
321	3-960-272-01	SCREW (2.6)	
322	X-3943-886-1	TG1 ASSY	
323	3-958-492-01	SPRING (TG1), TENSION COIL	
324	A-6750-314-A	T BLOCK ASSY, SHUTTLE	
325	X-3944-378-1	ROLLER ASSY, GUIDE	
326	A-6750-316-A	SHUTTLE (S) BLOCK ASSY	
327	3-958-504-01	ARM, FIXED RELEASE	
328	3-962-874-01	O-RING	
M902	1-698-409-11	MOTOR, DC (CAPSTAN)	

5-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	A-6782-408-A	CP-67 BOARD, COMPLETE	(E700EX/UX)
*	A-6782-414-A	CP-67 BOARD, COMPLETE	(E600B, E700B, E800BM/NP/VC)
*	A-6782-509-A	CP-67 BOARD, COMPLETE	(E500UX)
*	A-6782-512-A	CP-67 BOARD, COMPLETE	(E500AP/IT/VP)
*	A-6782-517-A	CP-67 BOARD, COMPLETE	(E500CP)
		*********************	
			(Ref. No 5,000 series)
		< CAPACITOR >	
C101	1-124-903-11	ELECT 1uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/VC)
C102	1-124-477-11	ELECT 47uF 20% 25V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C103	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C104	1-124-903-11	ELECT 1uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/VC)
C105	1-124-903-11	ELECT 1uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/VC)
C106	1-124-903-11	ELECT 1uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/VC)
C107	1-126-233-11	ELECT 22uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/VC)
C108	1-126-233-11	ELECT 22uF 20% 50V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C109	1-163-059-00	CERAMIC CHIP 0.01uF 10% 50V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C110	1-124-477-11	ELECT 47uF 20% 25V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C111	1-126-233-11	ELECT 22uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/VC)
C112	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/NC)
C113	1-126-233-11	ELECT 22uF 20% 50V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/NC)
C114	1-126-233-11	ELECT 22uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/NC)
C115	1-126-233-11	ELECT 22uF 20% 50V	(E500CP, E600B, E700B, E800BM/NP/VC)
C116	1-126-233-11	ELECT 22uF 20% 50V	(E600B, E700B, E800BM/NP/VC)
C117	1-126-233-11	ELECT 22uF 20% 50V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C118	1-126-233-11	ELECT 22uF 20% 50V	(E600B, E700B, E800BM/NP/VC)
C119	1-126-233-11	ELECT 22uF 20% 50V	(E600B, E700B, E800BM/NP/VC)
C120	1-126-233-11	ELECT 22uF 20% 50V	(E600B, E700B, E800BM/NP/VC)
C121	1-126-233-11	ELECT 22uF 20% 50V	(E600B, E700B, E800BM/NP/VC)
C122	1-126-233-11	ELECT 22uF 20% 50V	(E600B, E700B, E800BM/NP/VC)
C123	1-162-638-11	CERAMIC CHIP 1uF 16V	(E700EX/UX)
C124	1-164-346-11	CERAMIC CHIP 1uF 16V	(E700EX/UX)
C125	1-162-638-11	CERAMIC CHIP 1uF 16V	(E700EX/UX)
C131	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(E700EX/UX)
C132	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(E700EX/UX)
C133	1-124-907-11	ELECT 10uF 20% 50V	(E700EX/UX)
C134	1-124-907-11	ELECT 10uF 20% 50V	(E700EX/UX)
C136	1-124-477-11	ELECT 47uF 20% 25V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C137	1-164-336-11	CERAMIC CHIP 0.33uF 25V	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
C704	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	(E500)
C705	1-124-927-11	ELECT 4.7uF 20% 100V	(E500)
C706	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(E500)
C711	1-126-101-11	ELECT 100uF 20% 16V	(E500)
C712	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(E500)

Ref. No.	Part No.	Description	Remark
C713	1-124-126-00	ELECT 47uF 20% (E500)	10V
C714	1-163-031-11	CERAMIC CHIP 0.01uF (E500)	50V
C715	1-163-031-11	CERAMIC CHIP 0.01uF (E500)	50V
C718	1-126-233-11	ELECT 22uF 20% (E500)	50V
C721	1-163-031-11	CERAMIC CHIP 0.01uF (E500)	50V
C723	1-163-031-11	CERAMIC CHIP 0.01uF (E500)	50V
C727	1-124-126-00	ELECT 47uF 20% (E500)	10V
C733	1-124-907-11	ELECT 10uF 20% (E500)	50V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CJ101	1-695-935-11	CONNECTOR (SQUARE TYPE) 21P (CANAL+, EURO-AV(LINE IN2)) (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
CN101	1-506-478-11	PIN, CONNECTOR 13P (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
CN102	1-691-057-21	HOUSING, CONNECTOR 25P (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
CN701	1-506-473-11	PIN, CONNECTOR 8P (E500)	
CN702	1-506-477-11	PIN, CONNECTOR 12P (E500)	

< DIODE >

Ref. No.	Part No.	Description	Remark
D101	8-719-800-76	DIODE 1SS226 (E500CP, E600B, E700B, E800BM/NP/VC)	
D102	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D103	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D104	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B, E800BM/NP/VC)	
D105	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B, E800BM/NP/VC)	
D106	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B, E800BM/NP/VC)	
D107	8-719-921-86	DIODE MTZJ-13 (E500CP, E600B, E700B, E800BM/NP/VC)	
D108	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D109	8-719-109-97	DIODE RD6.8ESB2 (E600B, E700B, E800BM/NP/VC)	
D110	8-719-109-97	DIODE RD6.8ESB2 (E600B, E700B, E800BM/NP/VC)	
D111	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B, E800BM/NP/VC)	
D112	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B, E800BM/NP/VC)	
D113	8-719-108-12	DIODE RD9.1EW (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D114	8-719-108-12	DIODE RD9.1EW (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D115	8-719-108-12	DIODE RD9.1EW (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D116	8-719-108-12	DIODE RD9.1EW (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D117	8-719-108-12	DIODE RD9.1EW (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D702	8-719-800-76	DIODE 1SS226 (E500)	
D703	8-719-978-94	DIODE DTZ-TT11-30C (E500)	

< FILTER >

Ref. No.	Part No.	Description	Remark
FL101	1-236-163-11	ENCAPSULATED COMPONENT (E500CP, E600B, E700B, E800BM/NP/VC)	
FL102	1-236-163-11	ENCAPSULATED COMPONENT (E600B, E700B, E800BM/NP/VC)	
FL103	1-236-163-11	ENCAPSULATED COMPONENT (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
FL104	1-236-163-11	ENCAPSULATED COMPONENT (E600B, E700B/EX/UX, E800BM/NP/VC)	

< IC >

Ref. No.	Part No.	Description	Remark
IC101	8-759-280-24	IC BA7630F-E2 (E500CP, E600B, E700B, E800BM/NP/VC)	
IC102	8-759-280-23	IC BA7632F-E2 (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
IC103	8-759-280-23	IC BA7632F-E2 (E600B, E700B, E800B/NP/VC)	
IC104	8-759-296-72	IC PQ12SZ5U (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
IC131	8-759-710-07	IC NJM2234M (E700EX/UX)	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remark
JR104	1-216-295-91	CONDCTOR, CHIP (2012) (E500)	
JR111	1-216-295-91	CONDCTOR, CHIP (2012) (E500CP, E600B, E700B, E800BM/NP/VC)	
JR112	1-216-295-91	CONDCTOR, CHIP (2012) (E700EX/UX)	
JR113	1-216-295-91	CONDCTOR, CHIP (2012) (E700EX/UX)	
JR114	1-216-296-00	METAL CHIP 0 5% (E700EX/UX)	1/8W
JR130	1-216-295-91	CONDCTOR, CHIP (2012) (E700EX/UX)	
JR156	1-216-296-00	METAL CHIP 0 5% (E500, E600B, E700B/EX/UX, E800BM/NP/VC)	1/8W
JR157	1-216-296-00	METAL CHIP 0 5% (E500, E600B, E700B/EX/UX, E800BM/NP/VC)	1/8W
JR701	1-216-295-91	CONDCTOR, CHIP (2012) (E500)	

Ref. No.	Part No.	Description	Remark
		< COIL >	
L101	1-414-189-31	INDUCTOR 100uH (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
L131	1-414-183-41	INDUCTOR 10uH (E700EX/UX)	
L702	1-414-189-31	INDUCTOR 100uH (E500)	
L703	1-414-183-41	INDUCTOR 10uH (E500)	
L704	1-414-189-31	INDUCTOR 100uH (E500)	
L706	1-410-501-11	INDUCTOR 2.2uH (E500)	
L707	1-410-501-11	INDUCTOR 2.2uH (E500)	
L712	1-414-142-11	INDUCTOR 1uH (E500)	
		< TRANSISTOR >	
Q101	8-729-010-05	TRANSISTOR MSB709-RT1 (E500CP, E600B, E700B, E800BM/NP/VC)	
Q102	8-729-010-25	TRANSISTOR MSD601-RT1 (E500CP, E600B, E700B, E800BM/NP/VC)	
Q103	8-729-010-05	TRANSISTOR MSB709-RT1 (E500CP, E600B, E700B, E800BM/NP/VC)	
Q703	8-729-173-38	TRANSISTOR 2SA733-K (E500)	
Q705	8-729-010-25	TRANSISTOR MSD601-RT1 (E500)	
Q709	8-729-010-25	TRANSISTOR MSD601-RT1 (E500)	
		< RESISTOR >	
R102	1-216-295-91	CONDCTOR, CHIP (2012) (E500CP, E600B, E700B, E800BM/NP/VC)	
R103	1-216-222-00	METAL GLAZE 10K 5% 1/8W (E500CP, E600B, E700B, E800BM/NP/VC)	
R104	1-216-222-00	METAL GLAZE 10K 5% 1/8W (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
R105	1-216-073-00	METAL CHIP 10K 5% 1/10W (E500CP, E600B, E700B, E800BM/NP/VC)	
R106	1-216-073-00	METAL CHIP 10K 5% 1/10W (E500CP, E600B, E700B, E800BM/NP/VC)	
R107	1-216-073-00	METAL CHIP 10K 5% 1/10W (E500CP, E600B, E700B, E800BM/NP/VC)	
R108	1-216-063-00	METAL CHIP 3.9K 5% 1/10W (E500CP, E600B, E700B, E800BM/NP/VC)	
R109	1-216-049-00	METAL CHIP 1K 5% 1/10W (E500CP, E600B, E700B, E800BM/NP/VC)	
R110	1-247-804-11	CARBON 75 5% 1/4W (E500CP, E600B, E700B, E800BM/NP/VC)	
R111	1-249-417-11	CARBON 1K 5% 1/4W (E500CP, E600B, E700B, E800BM/NP/VC)	F
R112	1-216-296-00	METAL CHIP 0 5% 1/8W (E500CP, E600B, E700B, E800BM/NP/VC)	
R115	1-216-022-00	METAL CHIP 75 5% 1/10W (E500CP/E600B/E700B/EX/UX, E800BM/NP/VC)	
R116	1-216-238-91	METAL GLAZE 47K 5% 1/8W (E500CP, E600B, E700B, E800BM/NP/VC)	
R117	1-216-238-91	METAL GLAZE 47K 5% 1/8W (E500CP, E600B, E700B, E800BM/NP/VC)	
R118	1-216-041-00	METAL CHIP 470 5% 1/10W (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
R119	1-216-041-00	METAL CHIP 470 5% 1/10W (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
R120	1-216-043-91	METAL GLAZE 560 5% 1/10W (E500CP, E600B, E700B, E800BM/NP/VC)	
R121	1-216-043-91	METAL GLAZE 560 5% 1/10W (E600B, E700B, E800BM/NP/VC)	
R131	1-216-025-00	METAL CHIP 100 5% 1/10W (E700EX/UX)	
R132	1-216-017-00	METAL CHIP 47 5% 1/10W (E700EX/UX)	
R701	1-216-025-00	METAL CHIP 100 5% 1/10W (E500)	
R702	1-216-222-00	METAL GLAZE 10K 5% 1/8W (E500)	
R703	1-247-807-31	CARBON 100 5% 1/4W (E500)	
R708	1-216-025-00	METAL CHIP 100 5% 1/10W (E500)	
R709	1-216-089-00	METAL CHIP 47K 5% 1/10W (E500)	
R713	1-216-186-00	METAL GLAZE 330 5% 1/8W (E500)	
R714	1-216-037-00	METAL CHIP 330 5% 1/10W (E500)	
R715	1-216-174-00	METAL GLAZE 100 5% 1/8W (E500)	
R718	1-216-025-00	METAL CHIP 100 5% 1/10W (E500)	
R719	1-216-049-00	METAL CHIP 1K 5% 1/10W (E500)	
R720	1-216-049-00	METAL CHIP 1K 5% 1/10W (E500)	
R721	1-216-041-00	METAL CHIP 470 5% 1/10W (E500)	
R722	1-216-041-00	METAL CHIP 470 5% 1/10W (E500)	
R725	1-216-025-00	METAL CHIP 100 5% 1/10W (E500)	
R726	1-216-025-00	METAL CHIP 100 5% 1/10W (E500)	
R731	1-247-807-31	CARBON 100 5% 1/4W (E500)	
R732	1-247-807-31	CARBON 100 5% 1/4W (E500)	
		< TUNER >	
⚠TU701	1-693-275-11	TUNER, IF (BTF-3MU601) (AERIAL OUT/IN) (E500UX)	
⚠TU701	1-693-279-11	TUNER, IF (BTF-3MC422) (AERIAL OUT/IN) (E500AP/CP/IT/VP)	

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* A-6794-030-A DC-58 BOARD, COMPLETE

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(Ref. No 4,000 series)

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
* CN701	1-766-714-11	CONNECTOR, BOARD TO BOAR 5P	
* CN702	1-766-713-11	CONNECTOR, BOARD TO BOAR 5P	

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* A-6721-595-A HF-34 BOARD, COMPLETE (E600/E700/E800)

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(Ref. No 4,000 series)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C101	1-124-907-11	ELECT 10uF 20% 50V	
C102	1-124-907-11	ELECT 10uF 20% 50V	
C103	1-124-927-11	ELECT 4.7uF 20% 100V	
C104	1-124-927-11	ELECT 4.7uF 20% 100V	
C105	1-124-126-00	ELECT 47uF 20% 10V	
C106	1-124-126-00	ELECT 47uF 20% 10V	
C107	1-124-126-00	ELECT 47uF 20% 10V	
C108	1-126-962-11	ELECT 3.3uF 20% 50V	
C109	1-126-962-11	ELECT 3.3uF 20% 50V	
C110	1-126-962-11	ELECT 3.3uF 20% 50V	
C111	1-126-962-11	ELECT 3.3uF 20% 50V	
C112	1-126-233-11	ELECT 22uF 20% 50V	
C113	1-126-233-11	ELECT 22uF 20% 50V	
C114	1-124-252-00	ELECT 0.33uF 20% 50V	
C115	1-124-443-00	ELECT 100uF 20% 10V	
C116	1-124-443-00	ELECT 100uF 20% 10V	
C117	1-104-792-51	ELECT 33uF 20% 16V	
C118	1-137-372-11	FILM 0.022uF 5% 50V	
C119	1-137-372-11	FILM 0.022uF 5% 50V	
C120	1-137-370-11	FILM 0.01uF 5% 50V	
C121	1-137-370-11	FILM 0.01uF 5% 50V	
C122	1-137-367-11	FILM 0.0033uF 5% 50V	
C123	1-137-367-11	FILM 0.0033uF 5% 50V	
C124	1-137-364-11	FILM 0.001uF 5% 50V	
C125	1-163-006-11	CERAMIC CHIP 560PF 10% 50V	
C126	1-163-006-11	CERAMIC CHIP 560PF 10% 50V	
C127	1-163-006-11	CERAMIC CHIP 560PF 10% 50V	
C128	1-163-006-11	CERAMIC CHIP 560PF 10% 50V	
C129	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C130	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C131	1-137-372-11	FILM 0.022uF 5% 50V	
C132	1-137-372-11	FILM 0.022uF 5% 50V	
C133	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C134	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C135	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
		< CONNECTOR >	
* CN101	1-573-825-11	CONNECTOR, BOARD TO BOARD 11P	
* CN102	1-573-825-11	CONNECTOR, BOARD TO BOARD 11P	
* CN103	1-564-013-11	PIN, CONNECTOR 3P	
		< DIODE >	
D101	8-719-404-46	DIODE MA110	
		< IC >	
IC101	8-759-188-81	IC XLH7776K-VP	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q101	8-729-804-41	TRANSISTOR 2SB1122-S	
Q102	8-729-820-68	TRANSISTOR 2SD1802FA-S	
Q103	8-729-421-19	TRANSISTOR UN2213	
Q104	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR >	
R101	1-208-806-11	METAL GLAZE 10K 0.50% 1/10W	
R102	1-208-809-11	METAL GLAZE 13K 0.50% 1/10W	
R103	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R104	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R105	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R106	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R107	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R108	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R109	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R110	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R111	1-216-105-91	METAL GLAZE 220K 5% 1/10W	
R112	1-216-105-91	METAL GLAZE 220K 5% 1/10W	
R113	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R114	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R115	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R116	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R118	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R119	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R120	1-216-295-91	CONDCTOR, CHIP (2012)	
R121	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R123	1-216-295-91	CONDCTOR, CHIP (2012)	
R124	1-216-066-00	METAL CHIP 5.1K 5% 1/10W	
R125	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R130	1-216-049-00	METAL CHIP 1K 5% 1/10W	
		< VARIABLE RESISTOR >	
RV101	1-241-764-11	RES, ADJ, CERMET 10K (PB RF BPF FO & HF/N DET BRF FO)	
RV102	1-241-763-11	RES, ADJ, CERMET 4.7K (VCO FO (R))	
RV103	1-241-763-11	RES, ADJ, CERMET 4.7K (VCO FO (L))	

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Ref. No.	Part No.	Description	Remark
*	A-6781-399-A	HI-6 BOARD, MOUNTED (E700EX/UX)	
*	A-6781-403-A	HI-6 BOARD, MOUNTED (E700IT)	
*	A-6781-415-A	HI-6 BOARD, MOUNTED (E700AP)	
*	A-6782-412-A	HI-6 BOARD, COMPLETE (E600B)	
	A-6782-415-A	HI-6 BOARD, COMPLETE (E700:NC1/NC2, E700B/VP)	
*	A-6782-453-A	HI-6 BOARD, COMPLETE (E800NC)	
*	A-6782-455-A	HI-6 BOARD, COMPLETE (E800NP)	
*	A-6782-457-A	HI-6 BOARD, COMPLETE (E800AP)	
*	A-6782-461-A	HI-6 BOARD, COMPLETE (E800BM)	
*	A-6782-464-A	HI-6 BOARD, COMPLETE (E800VC)	

HI-6

Ref. No.	Part No.	Description	Remark
*	A-6782-469-A	HI-6 BOARD, COMPLETE (E800EG)	
*	A-6782-472-A	HI-6 BOARD, COMPLETE (E800EE)	
*	A-6782-473-A	HI-6 BOARD, COMPLETE (E800IT)	
*	A-6782-510-A	HI-6 BOARD, COMPLETE (E500UX)	
*	A-6782-514-A	HI-6 BOARD, COMPLETE (E500VP)	
*	A-6782-518-A	HI-6 BOARD, COMPLETE (E500CP)	
*	A-6782-520-A	HI-6 BOARD, COMPLETE (E500AP)	
*	A-6782-522-A	HI-6 BOARD, COMPLETE (E500IT)	
*	A-6782-546-A	HI-6 BOARD, COMPLETE (E600VP)	
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		(Ref. No 3,000 series)	
*	3-960-068-11	HOLDER (A), FL	
		< BUZZER >	
BZ301	1-529-104-11	BUZZER, PIEZO ELECTRIC	
		< CAPACITOR >	
C302	1-164-346-11	CERAMIC CHIP 1uF 16V	
C304	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V (E500, E800)	
C305	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V (E800AP/BM/EE/EG/IT/NC/NP/VC)	
C305	1-216-295-91	CONDCTOR, CHIP (2012) (E500)	
C306	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V (E500, E800)	
C307	1-163-234-11	CERAMIC CHIP 20PF 5% 50V	
C308	1-163-102-00	CERAMIC CHIP 24PF 5% 50V	
C309	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C310	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C311	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C312	1-164-346-11	CERAMIC CHIP 1uF 16V	
C313	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C314	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C315	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C316	1-128-057-11	ELECT 330uF 20% 6.3V (E500AP/CP/IT/VP, E600, E700, E800EE/EG)	
C316	1-126-245-11	ELECT 330uF 20% 6.3V (E500UX)	
C317	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C318	1-125-705-11	CAP, DOUBLE LAYERS 0.22F	
C320	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C321	1-124-261-00	ELECT 10uF 20% 50V	
C326	1-126-154-11	ELECT 47uF 20% 6.3V (EXCEPT E500UX, E800NC)	
C326	1-126-245-11	ELECT 330uF 20% 6.3V (E500UX)	
C326	1-128-057-11	ELECT 330uF 20% 6.3V (E800NC)	
C330	1-124-584-00	ELECT 100uF 20% 10V	

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN301	1-691-051-21	HOUSING, CONNECTOR 19P	
CN302	1-691-051-21	HOUSING, CONNECTOR 19P	
CN303	1-568-673-11	CONNECTOR, BOARD TO BOARD 14P	
CN304	1-691-036-21	PIN, CONNECTOR (PC BOARD) 4P	
CN305	1-506-469-11	PIN, CONNECTOR 4P	
		< DIODE >	
D301	8-719-045-64	LED SLR-342MC-A-47 (ON/STANDBY, MARCHE/YEILLE)	
D302	8-719-045-64	LED SLR-342MC-A-47 (ON/STANDBY, MARCHE/YEILLE)	
D303	8-719-045-62	LED SLR-342VC-A-47 (ON/STANDBY, MARCHE/YEILLE)	
D304	8-719-911-19	DIODE 1SS119	
D312	8-719-911-19	DIODE 1SS119	
D313	8-719-200-82	DIODE 11ES2	
D320	8-719-110-08	DIODE RD8.2ESB2	
		< FLUORESCENT INDICATOR >	
FL301	1-517-313-11	INDICATOR TUBE, FLUORESCENT (EXCEPT E600B/E700B/E800BM)	
FL301	1-517-358-11	TUBE, FLUORESCENT INDICATOR (E600B, E700B, E800BM)	
		< IC >	
IC301	8-759-279-61	IC ST93CS66B1	
IC302	8-759-336-26	IC MB89096PF-G-175-BND (E500IT/VP, E600VP, E700IT/VP, E800EE/EG/IT/VC)	
IC302	8-759-336-27	IC MB89096PF-G-173-BND (E500CP/UX, E700:NC2, E700EX/UX, E800NP)	
IC302	8-759-336-28	IC MB89096PF-G-174-BND (E500AP, E600B, E700:NC1, E700AP/B, E800AP/BM/NC)	
IC303	8-759-248-87	IC MM1256XF-BE	
IC305	1-466-833-11	IC RAY-CATCHER BLOCK, REMOCON	
		< JUMPER RESISTOR >	
JR301	1-216-295-91	CONDCTOR, CHIP (2012)	
JR308	1-216-295-91	CONDCTOR, CHIP (2012)	
JR309	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR310	1-216-295-91	CONDCTOR, CHIP (2012)	
JR311	1-216-295-91	CONDCTOR, CHIP (2012)	
JR312	1-216-295-91	CONDCTOR, CHIP (2012)	
JR313	1-216-295-91	CONDCTOR, CHIP (2012)	
JR318	1-216-295-91	CONDCTOR, CHIP (2012)	
JR320	1-216-295-91	CONDCTOR, CHIP (2012) (E500)	
JR330	1-216-295-91	CONDCTOR, CHIP (2012)	

Note.
NC1 : Belgium, North European
NC2 : Spanish, Portugal

Ref. No.	Part No.	Description	Remark
JR331	1-216-295-91	CONDCTOR, CHIP (2012)	
JR332	1-216-295-91	CONDCTOR, CHIP (2012) (E500)	
JR332	1-216-296-00	METAL CHIP 0 5% (E800)	1/8W
JR333	1-216-296-00	METAL CHIP 0 5%	1/8W
JR334	1-216-296-00	METAL CHIP 0 5%	1/8W
JR335	1-216-296-00	METAL CHIP 0 5%	1/8W
JR336	1-216-296-00	METAL CHIP 0 5%	1/8W
JR337	1-216-296-00	METAL CHIP 0 5%	1/8W
JR338	1-216-296-00	METAL CHIP 0 5%	1/8W
JR339	1-216-296-00	METAL CHIP 0 5%	1/8W
JR340	1-216-296-00	METAL CHIP 0 5%	1/8W
JR341	1-216-296-00	METAL CHIP 0 5%	1/8W
JR342	1-216-296-00	METAL CHIP 0 5%	1/8W
JR345	1-216-296-00	METAL CHIP 0 5%	1/8W
JR373	1-216-295-91	CONDCTOR, CHIP (2012)	
JR375	1-216-295-91	CONDCTOR, CHIP (2012)	
JR376	1-216-295-91	CONDCTOR, CHIP (2012)	
		< COIL >	
L303	1-414-183-41	INDUCTOR 10uH	
L310	1-410-513-11	INDUCTOR 22uH	
		< JACK >	
PJ301	1-766-861-11	JACK, PIN (3P) (LINE IN 2 VIDEO AUDIO L/R) (E800)	
PJ301	1-766-862-11	JACK, PIN (2P) (LINE IN 2 VIDEO AUDIO) (E500)	
		< TRANSISTOR >	
Q301	8-729-421-19	TRANSISTOR UN2213	
Q302	8-729-900-51	TRANSISTOR DTA114TK	
		< RESISTOR >	
R301	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R302	1-216-020-00	METAL GLAZE 62 5%	1/10W
R303	1-216-033-00	METAL CHIP 220 5%	1/10W
R304	1-216-057-00	METAL CHIP 2.2K 5%	1/10W (E600)
R304	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E700, E800)	
R305	1-216-061-00	METAL CHIP 3.3K 5%	1/10W (E600)
R305	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E700, E800)	
R307	1-216-022-00	METAL CHIP 75 5% (E500, E800)	1/10W
R310	1-216-296-00	METAL CHIP 0 5%	1/8W
R312	1-216-073-00	METAL CHIP 10K 5%	1/10W (E600)
R312	1-216-113-00	METAL CHIP 470K 5% (E500, E700, E800)	1/10W
R313	1-216-073-00	METAL CHIP 10K 5%	1/10W (E600)
R313	1-216-113-00	METAL CHIP 470K 5% (E500, E700, E800)	1/10W
R314	1-249-429-11	CARBON 10K 5%	1/4W
R315	1-216-073-00	METAL CHIP 10K 5%	1/10W
R316	1-216-073-00	METAL CHIP 10K 5%	1/10W
R317	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R318	1-216-073-00	METAL CHIP 10K 5%	1/10W
R321	1-216-073-00	METAL CHIP 10K 5%	1/10W
R322	1-216-049-00	METAL CHIP 1K 5%	1/10W
R323	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R324	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R325	1-216-295-91	CONDCTOR, CHIP (2012)	
R326	1-249-425-11	CARBON 4.7K 5%	1/4W F
R327	1-216-041-00	METAL CHIP 470 5% (E800)	1/10W
R328	1-216-041-00	METAL CHIP 470 5% (E500, E800)	1/10W
R329	1-216-073-00	METAL CHIP 10K 5%	1/10W
R330	1-216-073-00	METAL CHIP 10K 5%	1/10W
R331	1-216-089-00	METAL CHIP 47K 5%	1/10W
R332	1-216-113-00	METAL CHIP 470K 5%	1/10W
R333	1-216-198-91	METAL GLAZE 1K 5%	1/8W
R334	1-216-095-00	METAL CHIP 82K 5%	1/10W
R336	1-216-057-00	METAL CHIP 2.2K 5%	1/10W (E600)
R336	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E700, E800)	
R337	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W (E600)
R337	1-216-296-00	METAL CHIP 0 5% (E500, E700, E800)	1/8W
R338	1-216-061-00	METAL CHIP 3.3K 5%	1/10W (E600VP)
R338	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E600B, E700, E800)	
R339	1-249-433-11	CARBON 22K 5% (E800)	1/4W
R340	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R341	1-216-057-00	METAL CHIP 2.2K 5%	1/10W (E600)
R341	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E700, E800)	
R342	1-216-065-00	METAL CHIP 4.7K 5%	1/10W (E600)
R342	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E700, E800)	
R343	1-249-433-11	CARBON 22K 5% (E800)	1/4W
R347	1-247-870-11	CARBON 43K 5%	1/4W
R348	1-249-437-11	CARBON 47K 5%	1/4W
R349	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R350	1-216-073-00	METAL CHIP 10K 5%	1/10W
R351	1-216-073-00	METAL CHIP 10K 5%	1/10W
R360	1-216-113-00	METAL CHIP 470K 5%	1/10W

Ref. No.	Part No.	Description				Remark
R361	1-249-417-11	CARBON	1K	5%	1/4W	F
R362	1-249-417-11	CARBON	1K	5%	1/4W	F
R363	1-249-417-11	CARBON	1K	5%	1/4W	F
R364	1-249-417-11	CARBON	1K	5%	1/4W	F
R365	1-249-417-11	CARBON	1K	5%	1/4W	F

< SWITCH >

Ref. No.	Part No.	Description
S301	1-571-977-11	SWITCH, TACTIL (ON/STANDBY)
S302	1-571-977-11	SWITCH, TACTIL (EJECT)
S303	1-571-977-11	SWITCH, TACTIL (TV/VTR) (E600)
S304	1-571-977-11	SWITCH, TACTIL (PROGRAM +) (E600)
S305	1-571-977-11	SWITCH, TACTIL (PROGRAM -) (E600)
S306	1-571-977-11	SWITCH, TACTIL (EASY SET UP) (E600)
S307	1-571-977-11	SWITCH, TACTIL (RF CHANNEL, INPUT SELECTOR)
S308	1-571-977-11	SWITCH, TACTIL (TAPE SPEED (SP/LP)) (E600)
S309	1-571-977-11	SWITCH, TACTIL (QUICK TIMER) (E600)
S310	1-571-977-11	SWITCH, TACTIL (EASY SET UP, AIDE MENU, VPS) (E500, E600VP, E700, E800)
S312	1-571-977-11	SWITCH, TACTIL (RF CHANNEL) (E600)
S341	1-572-908-11	SWITCH, SLIDE (EDIT ON/OFF)
S342	1-572-907-11	SWITCH, SLIDE (COLOR SYSTEM AUTO PAL/ MESECAM NTSC) (E800BM/EE/EG)

< VIBRATOR >

Ref. No.	Part No.	Description
X301	1-579-463-11	VIBRATOR, CRYSTAL (32KHz)
X302	1-579-126-11	VIBRATOR, CERAMIC (12MHz)

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Ref. No.	Part No.	Description
*	A-6782-392-A	MA-215 BOARD, COMPLETE (E700EX)
*	A-6782-395-A	MA-215 BOARD, COMPLETE (E700AP)
*	A-6782-396-A	MA-215 BOARD, COMPLETE (E700IT)
*	A-6782-404-A	MA-215 BOARD, COMPLETE (E600VP, E700VP)
*	A-6782-407-A	MA-215 BOARD, COMPLETE (E700UX)
*	A-6782-413-A	MA-215 BOARD, COMPLETE (E600B, E700B)
*	A-6782-416-A	MA-215 BOARD, COMPLETE (E700:NC1/NC2)
*	A-6782-454-A	MA-215 BOARD, COMPLETE (E800NC)
*	A-6782-456-A	MA-215 BOARD, COMPLETE (E800NP)
*	A-6782-458-A	MA-215 BOARD, COMPLETE (E800AP)
*	A-6782-459-A	MA-215 BOARD, COMPLETE (E800IT)
*	A-6782-462-A	MA-215 BOARD, COMPLETE (E800BM)
*	A-6782-465-A	MA-215 BOARD, COMPLETE (E800VC)
*	A-6782-470-A	MA-215 BOARD, COMPLETE (E800EE/EG)
*	A-6782-515-A	MA-215 BOARD, COMPLETE (E500AP/UX/VP)
*	A-6782-519-A	MA-215 BOARD, COMPLETE (E500CP)
*	A-6782-521-A	MA-215 BOARD, COMPLETE (E500IT)

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(Ref.No 1,000 series)

Ref. No.	Part No.	Description
*	3-960-273-01	SPACER, TOP END
*	3-960-274-01	SPACER, LED

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C001	1-163-033-91	CERAMIC CHIP	0.022uF		50V	
C002	1-163-033-91	CERAMIC CHIP	0.022uF		50V	
C003	1-126-096-11	ELECT	10uF	20%	35V	
C004	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C006	1-124-126-00	ELECT	47uF	20%	10V	
C007	1-124-635-00	ELECT	220uF	20%	6.3V	
C008	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C009	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C025	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C026	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C071	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C072	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C073	1-124-455-00	ELECT	100uF	20%	16V	
C074	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C075	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C076	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C077	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C078	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C079	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C101	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C102	1-124-126-00	ELECT	47uF	20%	10V	
C103	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V	
C104	1-126-233-11	ELECT	22uF	20%	50V	
C105	1-124-443-00	ELECT	100uF	20%	10V	
C106	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C107	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C108	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C109	1-124-925-11	ELECT	2.2uF	20%	100V	
C110	1-124-477-11	ELECT	47uF	20%	25V	
C111	1-124-925-11	ELECT	2.2uF	20%	100V	
C210	1-124-584-00	ELECT	100uF	20%	10V	
C211	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	
C212	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	
C213	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C214	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C254	1-130-489-00	MYLAR	0.033uF	5%	50V	
C255	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C256	1-124-248-00	ELECT	22uF	20%	35V	
C257	1-137-441-11	FILM	0.027uF	5%	50V	
C258	1-124-261-00	ELECT	10uF	20%	50V	

Ref. No.	Part No.	Description		Remark	
C271	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C272	1-124-589-11	ELECT	47uF	20%	16V
C351	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C352	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C353	1-124-464-11	ELECT	0.22uF	20%	50V
C354	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C361	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C362	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C401	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C402	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C404	1-163-105-00	CERAMIC CHIP (E600B, E700B, E800BM/EE/EG)	33PF	5%	50V
C405	1-163-107-00	CERAMIC CHIP (E600B, E700B, E800BM/EE/EG)	39PF	5%	50V
C406	1-126-785-11	ELECT	47uF	20%	10V
C407	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C408	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C409	1-126-785-11	ELECT	47uF	20%	10V
C410	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C411	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C412	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C413	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C416	1-124-257-00	ELECT	2.2uF	20%	50V
C417	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C418	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C419	1-124-126-00	ELECT	47uF	20%	10V
C420	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C421	1-162-306-11	CERAMIC	0.01uF	20%	16V
C422	1-124-903-11	ELECT	1uF	20%	50V
C423	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C424	1-126-785-11	ELECT	47uF	20%	10V
C425	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C427	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C501	1-126-096-11	ELECT (EXCEPT E700EX/UX)	10uF	20%	35V
C502	1-126-096-11	ELECT	10uF	20%	35V
C503	1-124-907-11	ELECT	10uF	20%	50V
C504	1-124-126-00	ELECT (E600, E700, E800)	47uF	20%	10V
C505	1-163-031-11	CERAMIC CHIP (E600, E700, E800)	0.01uF		50V
C506	1-163-031-11	CERAMIC CHIP (E600, E700, E800)	0.01uF		50V
C507	1-124-126-00	ELECT (EXCEPT E500)	47uF	20%	10V
C509	1-163-031-11	CERAMIC CHIP (E600, E700, E800)	0.01uF		50V
C510	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C511	1-124-477-11	ELECT	47uF	20%	25V
C512	1-124-126-00	ELECT	47uF	20%	10V
C513	1-124-472-11	ELECT	470uF	20%	10V
C514	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C516	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C703	1-124-261-00	ELECT (E600, E700, E800)	10uF	20%	50V
C704	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C705	1-124-261-00	ELECT (E600, E700, E800)	10uF	20%	50V
C707	1-124-477-11	ELECT (E600, E700, E800)	47uF	20%	25V
C708	1-163-031-11	CERAMIC CHIP (E600, E700, E800)	0.01uF		50V
C710	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C715	1-126-785-11	ELECT (E600, E700, E800)	47uF	20%	10V
C716	1-124-261-00	ELECT (E600, E700, E800)	10uF	20%	50V
C717	1-124-261-00	ELECT (E600, E700, E800)	10uF	20%	50V
C718	1-124-248-00	ELECT (E600, E700, E800)	22uF	20%	35V
C727	1-124-589-11	ELECT	47uF	20%	16V
C728	1-124-443-00	ELECT	100uF	20%	10V
C729	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C851	1-164-159-11	CERAMIC	0.1uF		50V
C852	1-164-159-11	CERAMIC	0.1uF		50V
C853	1-164-159-11	CERAMIC	0.1uF		50V
C854	1-124-903-11	ELECT	1uF	20%	50V
C855	1-164-159-11	CERAMIC	0.1uF		50V
C856	1-137-370-11	FILM	0.01uF	5%	50V
C857	1-126-163-11	ELECT	4.7uF	20%	50V
C858	1-126-962-11	ELECT	3.3uF	20%	50V
C859	1-163-014-00	CERAMIC CHIP	0.0027uF	5%	50V
C860	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C861	1-124-925-11	ELECT	2.2uF	20%	100V
C862	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C863	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C864	1-126-233-11	ELECT	22uF	20%	50V
C865	1-126-233-11	ELECT	22uF	20%	50V
C866	1-124-252-00	ELECT	0.33uF	20%	50V
C867	1-124-907-11	ELECT	10uF	20%	50V
C881	1-104-696-11	FILM (E600, E700)	0.015uF	5%	100V
C881	1-137-612-11	FILM (E500, E800)	0.0068uF	5%	100V
C882	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C883	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C884	1-124-120-11	ELECT (E600, E700)	220uF	20%	25V
C884	1-126-101-11	ELECT (E500, E800)	100uF	20%	16V

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Ref. No.	Part No.	Description	Remark
C889	1-137-453-11	FILM 560PF 5% 100V	
C891	1-104-697-11	FILM 0.047uF 5% 100V (E500, E800)	
C892	1-164-232-11	CERAMIC CHIP 0.01uF 50V (E500, E800)	
C893	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V (E500, E800)	
C894	1-126-101-11	ELECT 100uF 20% 16V (E500, E800)	
C901	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C902	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C903	1-124-443-00	ELECT 100uF 20% 10V (EXCEPT E500)	
C904	1-163-077-91	CERAMIC CHIP 0.1uF 50V (EXCEPT E500)	
C905	1-126-916-11	ELECT 1000uF 20% 6.3V	

< JACK >

Ref. No.	Part No.	Description	Remark
CJ501	1-568-016-11	SOCKET, PIN 21P	
CJ502	1-565-319-71	JACK, PIN 2P (EXCEPT E500)	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN051	1-766-537-11	CONNECTOR (HMD) 5P	
* CN071	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P	
CN101	1-506-468-11	PIN, CONNECTOR 3P	
CN501	1-506-478-11	PIN, CONNECTOR 13P (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
CN502	1-766-998-41	CONNECTOR, FFC/FPC (LIF) 25P (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
CN701	1-506-473-11	PIN, CONNECTOR 8P (E500)	
CN702	1-506-477-11	PIN, CONNECTOR 12P (E500)	
CN881	1-506-469-11	PIN, CONNECTOR 4P	
* CN882	1-560-891-00	PIN, CONNECTOR 3P	
CN891	1-506-468-11	PIN, CONNECTOR 3P	
* CN901	1-573-843-11	CONNECTOR, BOARD TO BOARD 11P (EXCEPT E500)	
* CN902	1-573-843-11	CONNECTOR, BOARD TO BOARD 11P (EXCEPT E500)	
* CN903	1-766-715-11	CONNECTOR, BOARD TO BOARD 10P (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)	
CN904	1-766-992-11	CONNECTOR, FFC/FPC (LIF) 19P	
CN905	1-766-992-11	CONNECTOR, FFC/FPC (LIF) 19P	
CN907	1-573-852-11	CONNECTOR, BOARD TO BOARD 20P	
CN908	1-573-846-11	CONNECTOR, BOARD TO BOARD 14P	
* CN909	1-766-538-11	CONNECTOR, BOARD TO BOARD 8P	
CN910	1-770-017-11	CONNECTOR, BOARD TO BOARD 19P	
* CN912	1-766-717-11	CONNECTOR, BOARD TO BOARD 5P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D001	8-719-048-26	LED GL528V1 (TOP/END LED)	
D006	8-719-921-54	DIODE MTZJ-6.2B	
D007	8-719-921-54	DIODE MTZJ-6.2B	
D071	8-719-923-60	DIODE MTZJ-T-77-9.1A	
D206	8-719-801-48	DIODE 1SS193	
D251	8-719-801-48	DIODE 1SS193	
D252	8-719-101-50	DIODE RD5.1EL2	
D253	8-719-101-47	DIODE RD4.7EL2	
D401	8-719-801-78	DIODE 1SS184 (E600B, E700B, E800BM/EE/EG)	
D402	8-719-801-48	DIODE 1SS193	
D501	8-719-109-97	DIODE RD6.8ESB2	
D502	8-719-109-97	DIODE RD6.8ESB2	
D503	8-719-109-97	DIODE RD6.8ESB2	
D504	8-719-109-97	DIODE RD6.8ESB2	
D505	8-719-109-97	DIODE RD6.8ESB2 (E500CP, E600B, E700B, E800BM/NP/VC)	
D506	8-719-921-86	DIODE MTZJ-13	
D507	8-719-982-09	DIODE MTZJ-4.3	
D508	8-719-109-97	DIODE RD6.8ESB2 (E600, E700, E800)	
D509	8-719-109-97	DIODE RD6.8ESB2 (E600, E700, E800)	
D510	8-719-109-97	DIODE RD6.8ESB2	
D511	8-719-109-97	DIODE RD6.8ESB2	
D512	8-719-109-97	DIODE RD6.8ESB2 (E600, E700, E800)	
D513	8-719-109-97	DIODE RD6.8ESB2 (E600, E700, E800)	
D514	8-719-109-97	DIODE RD6.8ESB2 (E600, E700, E800)	
D515	8-719-109-97	DIODE RD6.8ESB2 (E600, E700, E800)	
D516	8-719-200-82	DIODE 11ES2 (E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)	
D517	8-719-108-12	DIODE RD9.1EW	
D518	8-719-108-12	DIODE RD9.1EW	
D519	8-719-108-12	DIODE RD9.1EW	
D520	8-719-108-12	DIODE RD9.1EW	
⚠D702	8-719-800-76	DIODE 1SS226 (E600/E700/E800)	
D708	8-719-801-48	DIODE 1SS193	
D709	8-719-109-85	DIODE RD5.1ESB2	
D710	8-719-911-19	DIODE 1SS119-25	
D851	8-719-801-78	DIODE 1SS184	
D852	8-719-801-48	DIODE 1SS193 (E600B, E700B, E800BM/NP/VC)	
D853	8-719-800-76	DIODE 1SS226 (E500)	
D854	8-719-801-48	DIODE 1SS193 (E600B, E700B, E800BM/NP/VC)	
D901	8-719-801-48	DIODE 1SS193	
D902	8-719-200-82	DIODE 11ES2	
D903	8-719-200-82	DIODE 11ES2	
D904	8-719-991-75	DIODE RB425D (EXCEPT E500)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		< FILTER >	
FL501	1-236-163-11	ENCAPSULATED COMPONENT	
FL502	1-236-163-11	ENCAPSULATED COMPONENT	(E600, E700, E800)
FL503	1-236-163-11	ENCAPSULATED COMPONENT	(E600, E700, E800)
FL504	1-236-163-11	ENCAPSULATED COMPONENT	(E600, E700, E800)
FL505	1-236-163-11	ENCAPSULATED COMPONENT	
FL506	1-236-163-11	ENCAPSULATED COMPONENT	(E600, E700, E800)
		< IC >	
IC002	8-759-100-95	IC uPC324G2	
IC071	8-759-294-26	IC BA6209-V2	
IC101	8-759-246-14	IC TA8823N	
IC201	8-752-855-11	IC CXP87240-050Q	
IC251	8-759-702-02	IC NJM062M	
IC351	8-759-097-80	IC HD49783FP	
IC401	8-759-288-96	IC MB90089PF-118-ER	
IC402	8-759-164-09	IC LA7218M	
IC501	8-759-927-56	IC BA7021	
IC502	8-759-009-06	IC MC14052BF	(E600, E700, E800)
IC503	8-759-924-46	IC BA4560F	(E600, E700, E800)
IC851	8-759-268-02	IC BA7796FS-E2	
		< JUMPER RESISTOR >	
JR010	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR011	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR012	1-216-295-91	CONDCTOR, CHIP (2012)	
JR013	1-216-295-91	CONDCTOR, CHIP (2012)	
JR014	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR016	1-216-295-91	CONDCTOR, CHIP (2012)	
JR104	1-216-295-91	CONDCTOR, CHIP (2012)	(E500CP)
JR201	1-216-295-91	CONDCTOR, CHIP (2012)	
JR203	1-216-295-91	CONDCTOR, CHIP (2012)	(E500)
JR204	1-216-295-91	CONDCTOR, CHIP (2012)	(E500)
JR360	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR361	1-216-295-91	CONDCTOR, CHIP (2012)	
JR362	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR404	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500CP, E600B, E700B, E800BM/VC)
JR501	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500, E700)
JR502	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500CP, E600B. E700B/EX/UX, E800BM/NP/VC)
JR504	1-216-295-91	CONDCTOR, CHIP (2012)	(E500)
JR505	1-216-295-91	CONDCTOR, CHIP (2012)	(E500CP, E600B, E700B, E800BM/NP/VC)
JR511	1-216-295-91	CONDCTOR, CHIP (2012)	(E500)
JR513	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500CP/E600B/E700B/E800BM/VC)
JR514	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500, E600B, E700EX/UX, E800BM/NP/VC)
JR515	1-216-295-91	CONDCTOR, CHIP (2012)	(E500AP/IT/UX/VP, E600, E700, E800)
JR516	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500CP, E600B, E700B, E800BM/VC)
JR517	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500, E600B, E700B, E800BM/NP/VC)
JR518	1-216-296-00	METAL CHIP 0 5% 1/8W	(E500)
JR519	1-216-295-91	CONDCTOR, CHIP (2012)	(E500CP)
JR520	1-216-295-91	CONDCTOR, CHIP (2012)	(E500CP)
JR522	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500)
JR525	1-216-295-91	CONDCTOR, CHIP (2012)	(E700EX/UX)
JR526	1-216-295-91	CONDCTOR, CHIP (2012)	(E700EX/UX)
JR528	1-216-295-91	CONDCTOR, CHIP (2012)	(E500CP, E600B, E700B, E800BM/NP/VC)
JR541	1-216-295-91	CONDCTOR, CHIP (2012)	(E600B, E700B/EX/UX, E800BM/NP/VC)
JR542	1-216-295-91	CONDCTOR, CHIP (2012)	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
JR543	1-216-295-91	CONDCTOR, CHIP (2012)	(E500CP, E600B, E700B/EX/UX, E800BM/NP/VC)
JR704	1-216-295-91	CONDCTOR, CHIP (2012)	
JR705	1-216-295-91	CONDCTOR, CHIP (2012)	
JR713	1-216-296-00	METAL CHIP 0 5% 1/8W	(E500)
JR715	1-216-295-91	CONDCTOR, CHIP (2012)	(E600B, E700B, E800BM)
JR717	1-216-295-91	CONDCTOR, CHIP (2012)	(E600B, E700B, E800BM)
JR721	1-216-295-91	CONDCTOR, CHIP (2012)	(E600, E700, E800)
JR891	1-216-295-91	CONDCTOR, CHIP (2012)	(E600, E700)
JR902	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E800BM/IT)
JR903	1-216-295-91	CONDCTOR, CHIP (2012)	(E500)
JR904	1-216-295-91	CONDCTOR, CHIP (2012)	(E500, E800)
JR906	1-216-295-91	CONDCTOR, CHIP (2012)	
JR908	1-216-295-91	CONDCTOR, CHIP (2012)	(EXCEPT E500IT, E600B, E700B/IT, E800BM/IT)
		< COIL >	
L101	1-410-482-31	INDUCTOR 100uH	
L202	1-410-470-11	INDUCTOR 10uH	
L251	1-410-513-11	INDUCTOR 22uH	
L401	1-410-482-31	INDUCTOR 100uH	

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Ref. No.	Part No.	Description	Remark
L402	1-410-515-11	INDUCTOR 33uH (E600B, E700B, E800BM/EE/EG)	
L403	1-408-974-21	INDUCTOR 22uH	
L404	1-410-482-31	INDUCTOR 100uH	
L501	1-410-509-11	INDUCTOR 10uH	
L502	1-410-482-31	INDUCTOR 100uH (E600, E700, E800)	
L503	1-410-482-31	INDUCTOR 100uH (E600, E700, E800)	
L505	1-410-482-31	INDUCTOR 100uH	
L506	1-410-501-11	INDUCTOR 2.2uH	
L701	1-414-183-41	INDUCTOR 10uH (E600, E700, E800)	
L703	1-414-183-41	INDUCTOR 10uH (E600, E700, E800)	
L704	1-414-183-41	INDUCTOR 10uH (E600, E700, E800)	
L710	1-410-501-11	INDUCTOR 2.2uH (E600, E700, E800)	
L712	1-410-501-11	INDUCTOR 2.2uH (E600, E700, E800)	
L851	1-410-482-31	INDUCTOR 100uH	
L881	1-410-687-11	INDUCTOR 1.2mH	
L891	1-410-687-11	INDUCTOR 1.2mH (E500, E800)	
		< CABLE >	
P701	1-555-110-00	CABLE, PIN (E600, E700, E800)	
		< PHOTO INTERRUPTER >	
PH001	8-749-010-19	PHOTO INTERRUPTER GP3S113	
PH002	8-749-010-20	PHOTO INTERRUPTER GP3S114	
		< IC LINK >	
⚠PS201	1-532-727-11	LINK, IC 0.25A (ICP-N5)	
⚠PS887	1-532-727-11	LINK, IC 0.25A (ICP-N5)	
		< TRANSISTOR >	
Q001	8-729-025-92	PHOTO TRANSISTOR PT380F	
Q002	8-729-025-92	PHOTO TRANSISTOR PT380F	
Q003	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q351	8-729-901-06	TRANSISTOR DTA144EK	
Q353	8-729-421-19	TRANSISTOR UN2213	
Q354	8-729-010-25	TRANSISTOR MSD601-RT1	
Q401	8-729-421-19	TRANSISTOR UN2213 (E600B, E700B, E800BM/EE/EG)	
Q402	8-729-901-06	TRANSISTOR DTA144EK	
Q404	8-729-010-05	TRANSISTOR MSB709-RT1	
Q405	8-729-010-25	TRANSISTOR MSD601-RT1 (E600B, E700B, E800BM/EE/EG)	
Q406	8-729-010-05	TRANSISTOR MSB709-RT1	
Q407	8-729-010-05	TRANSISTOR MSB709-RT1	
Q408	8-729-010-25	TRANSISTOR MSD601-RT1 (E500CP, E600B, E700B, E800BM/EE/EG)	
Q501	8-729-010-05	TRANSISTOR MSB709-RT1	
Q502	8-729-424-56	TRANSISTOR UN211L	

Ref. No.	Part No.	Description	Remark
Q503	8-729-421-19	TRANSISTOR UN2213	
Q702	8-729-421-19	TRANSISTOR UN2213	
⚠Q703	8-729-173-38	TRANSISTOR 2SA733-K (E600, E700, E800)	
Q704	8-729-010-05	TRANSISTOR MSB709-RT1 (E600, E700, E800)	
Q707	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q709	8-729-010-25	TRANSISTOR MSD601-RT1 (E500)	
Q710	8-729-010-25	TRANSISTOR MSD601-RT1	
Q711	8-729-010-25	TRANSISTOR MSD601-RT1	
Q712	8-729-010-25	TRANSISTOR MSD601-RT1	
Q713	8-729-010-05	TRANSISTOR MSB709-RT1	
Q851	8-729-010-25	TRANSISTOR MSD601-RT1 (E500)	
Q881	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q	
Q882	8-729-216-22	TRANSISTOR 2SA1162-G	
Q889	8-729-010-25	TRANSISTOR MSD601-RT1	
Q891	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q (E500, E800)	
Q892	8-729-216-22	TRANSISTOR 2SA1162-G (E500, E800)	
		< RESISTOR >	
R001	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R002	1-247-881-00	CARBON 120K 5% 1/4W	
R003	1-249-437-11	CARBON 47K 5% 1/4W	
R004	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R005	1-249-413-11	CARBON 470 5% 1/4W	F
R006	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R007	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R008	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R009	1-216-031-00	METAL CHIP 180 5% 1/10W	
R010	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R011	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R012	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R015	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R016	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R017	1-249-400-11	CARBON 39 5% 1/4W	F
R018	1-249-400-11	CARBON 39 5% 1/4W	F
R019	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R051	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R052	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R053	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R054	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R071	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R072	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R101	1-216-119-00	METAL CHIP 820K 5% 1/10W	
R102	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R103	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R104	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R105	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R106	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
R107	1-216-037-00	METAL CHIP	330	5%	1/10W
R108	1-216-121-00	METAL CHIP	1M	5%	1/10W
R109	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R110	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R111	1-216-097-00	METAL CHIP	100K	5%	1/10W
R126	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R202	1-216-089-00	METAL CHIP	47K	5%	1/10W
R214	1-216-049-00	METAL CHIP	1K	5%	1/10W
R217	1-216-077-00	METAL CHIP	15K	5%	1/10W
R219	1-216-073-00	METAL CHIP	10K	5%	1/10W
R220	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R224	1-249-421-11	CARBON	2.2K	5%	1/4W F
R225	1-216-089-00	METAL CHIP	47K	5%	1/10W
R226	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R256	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R257	1-249-429-11	CARBON	10K	5%	1/4W
R258	1-216-049-00	METAL CHIP	1K	5%	1/10W
R262	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R263	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R264	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R265	1-216-073-00	METAL CHIP	10K	5%	1/10W
R266	1-216-079-00	METAL CHIP	18K	5%	1/10W
R271	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R274	1-216-083-00	METAL CHIP	27K	5%	1/10W
R275	1-216-093-00	METAL CHIP	68K	5%	1/10W
R276	1-216-056-00	METAL GLAZE	2K	5%	1/10W
R277	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R278	1-216-224-91	METAL GLAZE	12K	5%	1/8W
R351	1-216-226-00	METAL GLAZE	15K	5%	1/8W
R352	1-216-073-00	METAL CHIP	10K	5%	1/10W
R353	1-216-073-00	METAL CHIP	10K	5%	1/10W
R354	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R355	1-216-073-00	METAL CHIP	10K	5%	1/10W
R356	1-247-889-00	CARBON	270K	5%	1/4W
R361	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R362	1-216-049-00	METAL CHIP	1K	5%	1/10W
R363	1-216-049-00	METAL CHIP	1K	5%	1/10W
R364	1-216-232-00	METAL GLAZE	27K	5%	1/8W
R365	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R366	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R367	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R368	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R369	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R370	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R371	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R372	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R373	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R374	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R401	1-216-049-00	METAL CHIP	1K	5%	1/10W
R402	1-216-073-00	METAL CHIP	10K	5%	1/10W
		(E600B, E700B, E800BM/EE/EG)			
R403	1-216-073-00	METAL CHIP	10K	5%	1/10W
		(E600B, E700B, E800BM/EE/EG)			
R404	1-216-073-00	METAL CHIP	10K	5%	1/10W
R405	1-216-295-91	CONDCTOR, CHIP (2012)			
R406	1-216-295-91	CONDCTOR, CHIP (2012)			
R407	1-249-414-11	CARBON	560	5%	1/4W F
R408	1-216-101-00	METAL CHIP	150K	5%	1/10W
R409	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R410	1-216-043-91	METAL GLAZE	560	5%	1/10W
R411	1-216-025-00	METAL CHIP	100	5%	1/10W
R412	1-216-295-91	CONDCTOR, CHIP (2012)			
R413	1-216-295-91	CONDCTOR, CHIP (2012)			
R414	1-216-081-00	METAL CHIP	22K	5%	1/10W
R415	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R416	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R417	1-216-033-00	METAL CHIP	220	5%	1/10W
R421	1-216-081-00	METAL CHIP	22K	5%	1/10W
R422	1-216-049-00	METAL CHIP	1K	5%	1/10W
		(E500CP, E600B, E700B, E800BM/NP/VC)			
R423	1-216-073-00	METAL CHIP	10K	5%	1/10W
R424	1-216-033-00	METAL CHIP	220	5%	1/10W
		(E500CP, E600B, E700B, E800BM/NP/VC)			
R425	1-216-033-00	METAL CHIP	220	5%	1/10W
		(E500CP, E600B, E700B, E800BM/NP/VC)			
R501	1-216-017-00	METAL CHIP	47	5%	1/10W
		(EXCEPT E700EX/UX)			
R502	1-216-017-00	METAL CHIP	47	5%	1/10W
R503	1-216-226-00	METAL GLAZE	15K	5%	1/8W
		(E600, E700, E800)			
R504	1-216-079-00	METAL CHIP	18K	5%	1/10W
		(E600, E700, E800)			
R505	1-216-081-00	METAL CHIP	22K	5%	1/10W
		(EXCEPT E500, E700EX/UX)			
R506	1-216-085-00	METAL CHIP	33K	5%	1/10W
		(EXCEPT E500, E700EX/UX)			
R506	1-216-295-91	CONDCTOR, CHIP (2012)			
		(E700EX/UX)			
R507	1-216-091-00	METAL CHIP	56K	5%	1/10W
		(E600, E700, E800)			
R508	1-216-238-91	METAL GLAZE	47K	5%	1/8W
		(E600, E700, E800)			
R509	1-216-238-91	METAL GLAZE	47K	5%	1/8W
		(E600, E700, E800)			
R510	1-216-079-00	METAL CHIP	18K	5%	1/10W
		(E600, E700, E800)			
R511	1-216-240-00	METAL GLAZE	56K	5%	1/8W
		(E600, E700, E800)			
R512	1-216-234-00	METAL GLAZE	33K	5%	1/8W
		(EXCEPT E500, E700EX/UX)			

MA-215

Ref. No.	Part No.	Description	Remark
R512	1-216-296-00	METAL CHIP 0 5% 1/8W (E700EX/UX)	
R513	1-216-081-00	METAL CHIP 22K 5% 1/10W (EXCEPT E500, E700EX/UX)	
R514	1-216-077-00	METAL CHIP 15K 5% 1/10W (E600, E700, E800)	
R515	1-216-295-91	CONDCTOR, CHIP (2012) (E500)	
R515	1-216-085-00	METAL CHIP 33K 5% 1/10W (E600, E700, E800)	
R516	1-249-435-11	CARBON 33K 5% 1/4W (E600, E700, E800)	
R517	1-216-037-00	METAL CHIP 330 5% 1/10W	
R519	1-249-408-11	CARBON 180 5% 1/4W	F
R520	1-247-811-31	CARBON 150 5% 1/4W	
R521	1-216-170-00	METAL GLAZE 68 5% 1/8W	
R522	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R523	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R524	1-216-022-00	METAL CHIP 75 5% 1/10W	
R525	1-216-049-00	METAL CHIP 1K 5% 1/10W (E500CP, E600B, E700B, E800BM/NP/VC)	
R526	1-216-190-00	METAL GLAZE 470 5% 1/8W	
R527	1-216-190-00	METAL GLAZE 470 5% 1/8W	
R528	1-216-043-91	METAL GLAZE 560 5% 1/10W (EXCEPT E500)	
R529	1-216-043-91	METAL GLAZE 560 5% 1/10W (EXCEPT E500)	
R530	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R531	1-216-043-91	METAL GLAZE 560 5% 1/10W (EXCEPT E500)	
R532	1-216-295-91	CONDCTOR, CHIP (2012)	
R533	1-216-295-91	CONDCTOR, CHIP (2012) (EXCEPT E700EX)	
R534	1-216-065-00	METAL CHIP 4.7K 5% 1/10W (EXCEPT E500)	
R535	1-216-065-00	METAL CHIP 4.7K 5% 1/10W (EXCEPT E500)	
R701	1-216-041-00	METAL CHIP 470 5% 1/10W (EXCEPT E500)	
R702	1-216-041-00	METAL CHIP 470 5% 1/10W (EXCEPT E500)	
R703	1-216-295-91	CONDCTOR, CHIP (2012) (EXCEPT E500)	
R704	1-216-295-91	CONDCTOR, CHIP (2012) (EXCEPT E500)	
R705	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R706	1-216-083-00	METAL CHIP 27K 5% 1/10W (EXCEPT E700EX)	
R706	1-216-105-91	METAL GLAZE 220K 5% 1/10W (E600B, E700B, E800BM)	
R709	1-216-089-00	METAL CHIP 47K 5% 1/10W (E600, E700, E800)	
R710	1-216-295-91	CONDCTOR, CHIP (2012) (E600, E700, E800)	
R711	1-216-073-00	METAL CHIP 10K 5% 1/10W (E600, E700, E800)	
R712	1-216-025-00	METAL CHIP 100 5% 1/10W (E600, E700, E800)	
R721	1-216-037-00	METAL CHIP 330 5% 1/10W (E600, E700, E800)	
R722	1-247-807-31	CARBON 100 5% 1/4W (E600, E700, E800)	
R724	1-249-415-11	CARBON 680 5% 1/4W	F
R725	1-216-041-00	METAL CHIP 470 5% 1/10W (E600B, E700B, E800BM)	
R727	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R728	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R731	1-216-025-00	METAL CHIP 100 5% 1/10W (E600, E700, E800)	
R732	1-216-025-00	METAL CHIP 100 5% 1/10W (E600, E700, E800)	
R738	1-216-025-00	METAL CHIP 100 5% 1/10W (E600, E700, E800)	
R739	1-216-025-00	METAL CHIP 100 5% 1/10W (E600, E700, E800)	
R741	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R742	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R743	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R744	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R851	1-216-075-00	METAL CHIP 12K 5% 1/10W (E600, E700, E800)	
R851	1-216-093-00	METAL CHIP 68K 5% 1/10W	(E500)
R852	1-216-069-00	METAL CHIP 6.8K 5% 1/10W (E600, E700, E800)	
R852	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	(E500)
R853	1-216-075-00	METAL CHIP 12K 5% 1/10W	(E500)
R853	1-216-095-00	METAL CHIP 82K 5% 1/10W (E600B, E700B, E800/BM/NP/VC)	
R854	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	(E500)
R854	1-216-081-00	METAL CHIP 22K 5% 1/10W (E600B, E700B, E800/BM/NP/VC)	
R855	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R856	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R857	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R858	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R859	1-216-083-00	METAL CHIP 27K 5% 1/10W	(E500)
R859	1-216-295-91	CONDCTOR, CHIP (2012) (E600, E700, E800)	
R860	1-216-083-00	METAL CHIP 27K 5% 1/10W (E600, E700, E800)	
R860	1-216-295-91	CONDCTOR, CHIP (2012) (E500)	
R861	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R862	1-216-109-00	METAL CHIP 330K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R863	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R864	1-216-041-00	METAL CHIP 470 5% 1/10W	
R865	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R866	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R867	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R868	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R869	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R870	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R871	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R872	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R873	1-216-043-91	METAL GLAZE 560 5% 1/10W (E500)	
R873	1-216-295-91	CONDCTOR, CHIP (2012) (E600, E700, E800)	
R874	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (E500)	
R875	1-249-432-11	CARBON 18K 5% 1/4W (E600, E700, E800)	
R876	1-216-001-00	METAL CHIP 10 5% 1/10W	
R877	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R881	1-216-081-00	METAL CHIP 22K 5% 1/10W	
⚠R882	1-249-389-11	CARBON 4.7 5% 1/4W F (E600, E700)	
⚠R882	1-249-395-11	CARBON 15 5% 1/4W F (E500, E800)	
R883	1-249-417-11	CARBON 1K 5% 1/4W F	
R884	1-216-097-00	METAL CHIP 100K 5% 1/10W (E500, E800)	
R884	1-216-689-11	METAL CHIP 39K 0.5% 1/10W (E600, E700)	
R887	1-216-295-91	CONDCTOR, CHIP (2012)	
R891	1-216-083-00	METAL CHIP 27K 5% 1/10W (E500, E800)	
R892	1-249-394-11	CARBON 12 5% 1/4W F (E500, E800)	
R893	1-249-417-11	CARBON 1K 5% 1/4W F (E500, E800)	
R894	1-216-097-00	METAL CHIP 100K 5% 1/10W (E500, E800)	
R896	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R897	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R898	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R899	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R903	1-208-800-11	METAL CHIP 5.6K 0.50% 1/10W (EXCEPT E500)	
R904	1-208-784-11	METAL CHIP 1.2K 0.50% 1/10W (EXCEPT E500)	
R905	1-216-049-00	METAL CHIP 1K 5% 1/10W (EXCEPT E500)	
R906	1-216-049-00	METAL CHIP 1K 5% 1/10W (EXCEPT E500)	

Ref. No.	Part No.	Description	Remark
		< RF MODULATOR >	
⚠RF701	1-467-958-21	MODULATOR, RF (RFU-2100) (E600, E700, E800)	
		< VARIABLE RESISTOR >	
RV201	1-238-019-11	RES, ADJ, CARBON 47K (AF SW POS) (EXCEPT E500)	
RV202	1-238-019-11	RES, ADJ, CARBON 47K (RF SW POS)	
RV887	1-238-019-11	RES, ADJ, CARBON 47K (BIAS)	
		< SWITCH >	
S002	1-570-953-11	SWITCH, PUSH (1 KEY)	
		< TRANSFORMER >	
T881	1-423-413-11	TRANSFORMER, BIAS OSCILLATION (E500, E800)	
T881	1-423-414-11	TRANSFORMER, BIAS OSCILLATION (E600, E700)	
T891	1-423-415-11	TRANSFORMER, BIAS OSCILLATION (E500, E800)	
		< TUNER >	
⚠TU701	1-693-267-11	TUNER, IF (BTF-3WC401) (E600VP, E700AP/IT/VP, E800AP/IT/VC)	
⚠TU701	1-693-269-11	TUNER, IF (BTF-3WC441) (E600B, E700B, E800BM)	
⚠TU701	1-693-274-11	TUNER, IF (BTF-3WC431) (E700EX)	
⚠TU701	1-693-272-11	TUNER, IF (BTF-3WC411) (E700, E800NC/NP)	
⚠TU701	1-693-273-11	TUNER, IF (BTF-3WU601) (E700UX)	
⚠TU701	1-693-268-11	TUNER, IF (BTF-3WC422) (E800EE/EG)	
		< VIBRATOR >	
X201	1-760-494-11	VIBRATOR, CRYSTAL (16MHz)	
X401	1-577-289-11	VIBRATOR, CRYSTAL (17.73MHz)	
X402	1-577-165-11	VIBLATOR, CERAMIC (500kHz)	

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* A-6782-400-A MF-254 BOARD, COMPLETE

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(Ref.No 3,000 series)

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C401	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C402	1-124-584-00	ELECT 100uF 20% 10V	
		< CONNECTOR >	
CN401	1-766-863-11	CONNECTOR, BOARD TO BOARD 14P	
* CN402	1-695-822-11	CONNECTOR, BOARD TO BOARD 8P	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

< DIODE >

Ref. No.	Part No.	Description	Remark
D403	8-719-045-62	LED SLR-342VC-A-47 (● REC)	
D404	8-719-045-63	LED SLR-342YC-A-47 (REC (ILM))	
D405	8-719-045-63	LED SLR-342YC-A-47 (REC (ILM))	
D406	8-719-045-62	LED SLR-342VC-A-47 (TIMER (ILM))	
D408	8-719-045-63	LED SLR-342YC-A-47 (TIMER (ILM))	
D409	8-719-045-63	LED SLR-342YC-A-47 (TIMER (ILM))	
D410	8-719-051-17	LED SLR-342DCT31 (❚❚ PAUSE)	
D415	8-719-200-82	DIODE 11ES2	
D424	8-719-045-63	LED SLR-342YC-A-47 (REC (TLM))	
D425	8-719-045-63	LED SLR-342YC-A-47 (REC (TLM))	
D428	8-719-045-63	LED SLR-342YC-A-47 (TIMER (TLM))	
D429	8-719-045-63	LED SLR-342YC-A-47 (TIMER (TLM))	

< IC >

Ref. No.	Part No.	Description	Remark
IC401	8-752-815-96	IC CXP2001M	

< RESISTOR >

Ref. No.	Part No.	Description	Value	Tol.	Rating
R401	1-216-032-00	METAL CHIP	200	5%	1/10W
R402	1-216-032-00	METAL CHIP	200	5%	1/10W
R403	1-216-032-00	METAL CHIP	200	5%	1/10W
R404	1-216-166-00	METAL GLAZE	47	5%	1/8W
R405	1-216-017-00	METAL CHIP	47	5%	1/10W
R406	1-216-032-00	METAL CHIP	200	5%	1/10W
R408	1-216-017-00	METAL CHIP	47	5%	1/10W
R409	1-216-017-00	METAL CHIP	47	5%	1/10W
R410	1-216-181-11	METAL GLAZE	200	5%	1/8W
R415	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R416	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R417	1-216-049-00	METAL CHIP	1K	5%	1/10W
R418	1-216-049-00	METAL CHIP	1K	5%	1/10W
R419	1-216-032-00	METAL CHIP	200	5%	1/10W
R420	1-216-032-00	METAL CHIP	200	5%	1/10W
R422	1-216-032-00	METAL CHIP	200	5%	1/10W
R423	1-216-032-00	METAL CHIP	200	5%	1/10W
R424	1-216-032-00	METAL CHIP	200	5%	1/10W
R425	1-216-032-00	METAL CHIP	200	5%	1/10W
R426	1-216-032-00	METAL CHIP	200	5%	1/10W
R427	1-216-032-00	METAL CHIP	200	5%	1/10W
R428	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R429	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R430	1-216-057-00	METAL CHIP	2.2K	5%	1/10W

< SWITCH >

Ref. No.	Part No.	Description	Remark
S401	1-762-172-21	SWITCH, ROTARY (◀◀ X2 1 1/5 PLAY▷ STOP■ 1/5 1 X2 ▶▶)	
S403	1-571-977-11	SWITCH, TACTIL (● REC)	
S410	1-571-977-11	SWITCH, TACTIL (❚❚ PAUSE)	

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Ref. No.	Part No.	Description	Remark
	A-6782-405-A	PS-328 BOARD, COMPLETE (E600, E700, E800AP/BM/IT/NC/NP/VC)	
*	A-6782-471-A	PS-328 BOARD, COMPLETE (E800EE/EG)	
	A-6782-511-A	PS-328 BOARD, COMPLETE (E500UX)	
*	A-6782-516-A	PS-328 BOARD, COMPLETE (E500AP/CP/IT/VP)	

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(Ref. No 3, 000 series)

Ref. No.	Part No.	Description	Remark
*	3-951-893-01	HEAT SINK	
	7-685-646-81	SCREW +BVTP 3X8 TYPE2	

< CAPACITOR >

Ref. No.	Part No.	Description	Value	Tol.	Rating
⚠C101	1-104-706-11	FILM	0.22uF	20%	250V
⚠C102	1-104-705-11	FILM	0.1uF	20%	250V
⚠C103	1-107-405-11	ELECT	68uF	20%	400V
⚠C104	1-164-320-11	CERAMIC	0.001uF	10%	400V
⚠C105	1-164-320-11	CERAMIC	0.001uF	10%	400V
⚠C106	1-164-320-11	CERAMIC	0.001uF	10%	400V
⚠C107	1-164-320-11	CERAMIC	0.001uF	10%	400V
⚠C108	1-164-320-11	CERAMIC	0.001uF	10%	400V
C121	1-126-103-11	ELECT	470uF	20%	16V
C122	1-124-473-11	ELECT	1000uF	20%	10V
C125	1-126-233-11	ELECT	22uF	20%	50V
C131	1-128-499-11	ELECT	220uF	20%	16V
C132	1-126-233-11	ELECT	22uF	20%	50V
C133	1-124-477-11	ELECT	47uF	20%	25V
C141	1-124-477-11	ELECT	47uF	20%	25V
C142	1-126-101-11	ELECT	100uF	20%	16V
C161	1-124-126-00	ELECT	47uF	20%	10V
C162	1-124-442-00	ELECT	330uF	20%	6.3V
C171	1-124-604-00	ELECT	330uF	20%	10V
C181	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C182	1-124-477-11	ELECT	47uF	20%	25V
C183	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C184	1-124-910-11	ELECT	47uF	20%	50V
C185	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C186	1-124-910-11	ELECT	47uF	20%	50V
C187	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C188	1-124-910-11	ELECT	47uF	20%	50V
C189	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C190	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C191	1-124-916-11	ELECT (E600, E700, E800)	22uF	20%	63V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
⚠CJ101	1-251-134-11	INLET, AC (NONPOLAR) (AC IN ~)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN101	1-770-018-11	CONNECTOR, BOARD TO BOARD 19P	
* CN102	1-695-823-11	CONNECTOR, BOARD TO BOARD 8P	
		< COMPOSITION CIRCUIT BLOCK >	
⚠CP101	1-413-897-11	POWER BLOCK (EXCEPT E500UX, E700UX)	
⚠CP101	1-413-940-11	POWER BLOCK (E500UX, E700UX)	
⚠CP102	1-467-811-11	UNIT, DC-DC CONVERTER	
		< DIODE >	
⚠D101	8-719-510-06	DIODE S1WB60	
D131	8-719-200-82	DIODE 11ES2	
D161	8-719-911-19	DIODE 1SS119	
D162	8-719-109-85	DIODE RD5.1ESB2	
		< FUSE >	
⚠F101	1-576-228-11	FUSE (H.B.C.)	
		< FUSE HOLDER >	
FH101	1-533-293-11	FUSE HOLDER	
FH102	1-533-293-11	FUSE HOLDER	
		< IC >	
⚠IC141	8-759-189-48	IC PQ12RE11	
		< JUMPER RESISTOR >	
JR101	1-216-295-91	CONDCTOR, CHIP (2012) (E800EE/EG)	
		< COIL >	
⚠L121	1-403-588-11	COIL, CHOKE 22uH	
⚠L122	1-403-588-11	COIL, CHOKE 22uH	
L122	1-403-588-11	COIL, CHOKE 22uH	
L181	1-408-409-00	INDUCTOR 10uH	
L182	1-414-142-11	INDUCTOR 1uH	
L183	1-414-142-11	INDUCTOR 1uH	
		< LINE FILTER >	
⚠LF101	1-409-977-11	FILTER, LINE	
⚠LF102	1-409-977-11	FILTER, LINE	
		< IC LINK >	
⚠PS121	1-532-637-00	LINK, IC 1.0A (ICP-N25)	
⚠PS122	1-532-637-00	LINK, IC 1.0A (ICP-N25)	
⚠PS123	1-532-637-00	LINK, IC 1.0A (ICP-N25)	
⚠PS181	1-532-605-00	LINK, IC 0.4A (ICP-N10)	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
⚠Q131	8-729-140-93	TRANSISTOR 2SB733-34	
Q132	8-729-421-22	TRANSISTOR UN2211	
⚠Q161	8-729-140-98	TRANSISTOR 2SD773-34	
		< RESISTOR >	
⚠R101	1-214-947-00	METAL 2.7M 1% 1/2W	
R112	1-216-089-00	METAL CHIP 47K 5% 1/10W (E800EE/EG)	
R125	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R131	1-249-417-11	CARBON 1K 5% 1/4W	F
R132	1-216-430-11	METAL OXIDE 390 5% 1W	F
R133	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R141	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R161	1-249-412-11	CARBON 390 5% 1/4W	F
R182	1-249-478-11	CARBON 2.2 5% 1/2W	F
R183	1-216-479-11	METAL OXIDE 560 5% 3W (E600/E700/E800)	F
		< SWITCH >	
S101	1-762-211-11	SWITCH, SLIDE (NTSC PB ON PAL TV/NTSC 4.43) (E800EE/EG)	

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Ref. No.	Part No.	Description	Remark
*	A-6782-401-A	PV-12 BOARD, COMPLETE (EXCEPT E500IT, E600B, E700B/IT, E800BM/IT) ********************* (Ref. No 3,000 series)	
		< CAPACITOR >	
C651	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C652	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C653	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C655	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C656	1-126-154-11	ELECT 47uF 20% 6.3V	
C657	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C658	1-126-157-11	ELECT 10uF 20% 16V	
C661	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C662	1-126-154-11	ELECT 47uF 20% 6.3V	
		< CONNECTOR >	
CN651	1-766-719-11	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D651	8-719-911-19	DIODE 1SS119	
D652	8-719-104-34	DIODE 1S2836	
D653	8-719-104-34	DIODE 1S2836	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

< IC >

Ref. No.	Part No.	Description		Remark
IC651	8-759-289-73	IC	SDA5649X-GEG	
IC652	8-752-850-71	IC	CXP80316-031Q	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description				Remark
JR651	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR652	1-216-296-00	METAL CHIP	0	5%	1/8W	

< COIL >

Ref. No.	Part No.	Description	Remark
L651	1-410-509-11	INDUCTOR 10uH	
L652	1-410-509-11	INDUCTOR 10uH	

< TRANSISTOR >

Ref. No.	Part No.	Description		Remark
Q651	8-729-010-05	TRANSISTOR	MSB709-RT1	

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R651	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R652	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R653	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R654	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R655	1-216-123-11	METAL CHIP	1.2M	5%	1/10W	
R656	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R657	1-216-123-11	METAL CHIP	1.2M	5%	1/10W	
R658	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R659	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R660	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R661	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R662	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R663	1-216-025-00	METAL CHIP	100	5%	1/10W	
R664	1-216-097-00	METAL CHIP	100K	5%	1/10W	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X651	1-579-125-11	VIBRATOR, CERAMIC (8MHz)	

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*	A-6782-402-A	RV-37 BOARD, COMPLETE (E600VP, E700:NC1/NC2, E700AP/EX/IT/UX/VP)
*	A-6782-411-A	RV-37 BOARD, COMPLETE (E600B, E700B)
*	A-6782-460-A	RV-37 BOARD, COMPLETE (E800BM)
*	A-6782-463-A	RV-37 BOARD, COMPLETE (E800AP/IT/NC/NP/VC)
*	A-6782-468-A	RV-37 BOARD, COMPLETE (E800EE/EG)
*	A-6782-513-A	RV-37 BOARD, COMPLETE (E500)

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(Ref. No 2,000series)

*	3-957-421-11	HOLDER, SECAM IC (E600B, E700B, E800BM)

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C002	1-163-123-00	CERAMIC CHIP (E500/E600/E700)	180PF	5%	50V	
C002	1-163-124-00	CERAMIC CHIP (E800)	200PF	5%	50V	
C006	1-126-157-11	ELECT	10uF	20%	16V	
C007	1-126-154-11	ELECT	47uF	20%	6.3V	
C008	1-126-154-11	ELECT	47uF	20%	6.3V	
C009	1-126-154-11	ELECT	47uF	20%	6.3V	
C010	1-126-154-11	ELECT	47uF	20%	6.3V	
C011	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C012	1-124-638-11	ELECT	22uF	20%	10V	
C071	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C072	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C073	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C074	1-163-125-00	CERAMIC CHIP (E600B, E700B, E800BM)	220PF	5%	50V	
C075	1-163-129-00	CERAMIC CHIP (E600B, E700B, E800BM)	330PF	5%	50V	
C075	1-163-117-00	CERAMIC CHIP (E600B, E700B, E800BM)	100PF	5%	50V	
C079	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C098	1-124-638-11	ELECT	22uF	20%	10V	
C099	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C203	1-163-031-11	CERAMIC CHIP (E600B, E700B, E800BM/EE/EG)	0.01uF		50V	
C204	1-126-154-11	ELECT (E600B, E700B, E800BM/EE/EG)	47uF	20%	6.3V	
C205	1-126-163-11	ELECT (E600B, E700B, E800BM/EE/EG)	4.7uF	20%	50V	
C206	1-163-035-00	CERAMIC CHIP (E600B, E700B, E800BM/EE/EG)	0.047uF		50V	
C207	1-124-638-11	ELECT (E600B, E700B, E800BM/EE/EG)	22uF	20%	10V	
C208	1-163-113-00	CERAMIC CHIP (E600B, E700B, E800BM/EE/EG)	68PF	5%	50V	
C209	1-163-031-11	CERAMIC CHIP (E600B, E700B, E800BM/EE/EG)	0.01uF		50V	
C251	1-124-638-11	ELECT (E600B, E700B, E800BM)	22uF	20%	10V	
C260	1-163-031-11	CERAMIC CHIP (E600, E700, E800)	0.01uF		50V	
C261	1-124-584-00	ELECT (E600, E700, E800)	100uF	20%	10V	
C262	1-163-031-11	CERAMIC CHIP (E600, E700, E800)	0.01uF		50V	
C263	1-163-038-91	CERAMIC CHIP (E600, E700, E800)	0.1uF		25V	
C264	1-124-257-00	ELECT (E600, E700, E800)	2.2uF	20%	50V	

Ref. No.	Part No.	Description			Remark
C265	1-163-031-11	CERAMIC CHIP (E600, E700. E800)	0.01uF		50V
C267	1-163-031-11	CERAMIC CHIP (E600. E700, E800)	0.01uF		50V
C268	1-163-263-11	CERAMIC CHIP (E600, E700, E800)	330PF	5%	50V
C269	1-163-263-11	CERAMIC CHIP (E600, E700, E800)	330PF	5%	50V
C270	1-163-038-91	CERAMIC CHIP (E600, E700, E800)	0.1uF		25V
C273	1-163-059-00	CERAMIC CHIP (E600, E700, E800)	0.01uF	10%	50V
C274	1-163-038-91	CERAMIC CHIP (E600, E700, E800)	0.1uF		25V
C275	1-126-160-11	ELECT (E600, E700, E800)	1uF	20%	50V
C276	1-163-031-11	CERAMIC CHIP (E600, E700, E800)	0.01uF		50V
C801	1-163-033-91	CERAMIC CHIP	0.022uF		50V
C802	1-163-033-91	CERAMIC CHIP	0.022uF		50V
C803	1-163-033-91	CERAMIC CHIP	0.022uF		50V
C804	1-163-077-91	CERAMIC CHIP	0.1uF		50V
C805	1-163-033-91	CERAMIC CHIP	0.022uF		50V
C806	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C807	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C808	1-124-584-00	ELECT	100uF	20%	10V
C809	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C810	1-124-584-00	ELECT	100uF	20%	10V
C811	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C813	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C814	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C815	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C816	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C817	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C818	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C822	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C826	1-124-229-00	ELECT	33uF	20%	10V
C827	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C829	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C830	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C838	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C840	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C842	1-126-160-11	ELECT	1uF	20%	50V
C851	1-163-129-00	CERAMIC CHIP (E600B, E700B, E800BM)	330PF	5%	50V
C881	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C882	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C883	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C884	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C899	1-163-077-91	CERAMIC CHIP	0.1uF		50V

Ref. No.	Part No.	Description			Remark
C901	1-163-088-00	CERAMIC CHIP (E500, E600, E700)	5PF		50V
C901	1-163-091-00	CERAMIC CHIP (E800)	8PF		50V
C902	1-163-033-91	CERAMIC CHIP (E800)	0.022uF		50V
C902	1-163-109-00	CERAMIC CHIP (E500, E600, E700)	47PF	5%	50V
C903	1-163-239-11	CERAMIC CHIP (E800)	33PF	5%	50V
C904	1-163-031-11	CERAMIC CHIP (E800)	0.01uF		50V
C907	1-163-033-91	CERAMIC CHIP (E800)	0.022uF		50V
C908	1-163-031-11	CERAMIC CHIP (E800)	0.01uF		50V
C909	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C910	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C911	1-163-243-11	CERAMIC CHIP (E800)	47PF	5%	50V
C912	1-163-031-11	CERAMIC CHIP (E800)	0.01uF		50V
C913	1-163-031-11	CERAMIC CHIP (E800)	0.01uF		50V
C914	1-163-117-00	CERAMIC CHIP (E800)	100PF	5%	50V
C916	1-216-295-91	CONDCTOR, CHIP (2012) (E800)			
C917	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C918	1-163-105-00	CERAMIC CHIP (E500, E600, E700)	33PF	5%	50V
C918	1-163-239-11	CERAMIC CHIP (E800)	33PF	5%	50V
C920	1-163-121-00	CERAMIC CHIP (E800)	150PF	5%	50V
C921	1-126-154-11	ELECT	47uF	20%	6.3V
C951	1-163-031-11	CERAMIC CHIP (E800)	0.01uF		50V
C952	1-163-035-00	CERAMIC CHIP (E800)	0.047uF		50V
C953	1-163-243-11	CERAMIC CHIP (E800)	47PF	5%	50V
C954	1-163-263-11	CERAMIC CHIP (E800)	330PF	5%	50V
C955	1-163-243-11	CERAMIC CHIP (E800)	47PF	5%	50V
C957	1-163-115-00	CERAMIC CHIP (E500, E600, E700)	82PF	5%	50V
C958	1-163-109-00	CERAMIC CHIP (E500, E600, E700)	47PF	5%	50V
C959	1-124-638-11	ELECT (E800)	22uF	20%	10V

RV-37

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN001	1-573-828-11	CONNECTOR, BOARD TO BOARD 14P	
CN002	1-573-834-11	CONNECTOR, BOARD TO BOARD 20P	
CN801	1-563-585-11	CONNECTOR, FLEXIBLE 8P (E500)	
CN801	1-766-986-11	CONNECTOR, FFC/FPC (LIF) 13P (E600, E700, E800)	
* CN803	1-564-013-11	PIN, CONNECTOR 3P (E600, E700, E800)	
* CN802	1-564-029-00	PIN, CONNECTOR 4P	
		< FILTER >	
CF201	1-527-943-00	FILTER, CERAMIC (E600B, E700B, E800BM/EE/EG)	
		< DIODE >	
D001	8-719-911-19	DIODE 1SS119	
D801	8-719-801-78	DIODE 1SS184	
D802	8-719-801-78	DIODE 1SS184	
D803	8-719-801-78	DIODE 1SS184	
D901	8-719-800-76	DIODE 1SS226 (E800)	
D902	8-719-801-78	DIODE 1SS184 (E800)	
		< IC >	
IC001	1-467-887-21	IC YC MODULE 2 (PAL) JFA1118	
IC201	8-759-199-28	IC BA7025F-E2 (E600B, E700B, E800BM/EE/EG)	
IC251	1-809-959-11	IC TME656 (E600B, E700B, E800BM)	
IC260	8-759-055-49	IC AN3327K (E600, E700, E800)	
IC801	8-759-267-78	IC HA118191ANT	
		< JUMPER RESISTOR >	
JR001	1-216-295-91	CONDCTOR, CHIP (2012)	
JR003	1-216-295-91	CONDCTOR, CHIP (2012)	
JR021	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR022	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR023	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR025	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR026	1-216-295-91	CONDCTOR, CHIP (2012)	
JR027	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR028	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR030	1-216-295-91	CONDCTOR, CHIP (2012)	
JR031	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR032	1-216-295-91	CONDCTOR, CHIP(2012)	
JR033	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR034	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR035	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR036	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR037	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR038	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR039	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR040	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR041	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR042	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR043	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR044	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR045	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR046	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR047	1-216-295-91	CONDCTOR, CHIP (2012)	
JR048	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR049	1-216-295-91	CONDCTOR, CHIP (2012)	
JR050	1-216-295-91	CONDCTOR, CHIP (2012)	
JR051	1-216-295-91	CONDCTOR, CHIP (2012)	
JR902	1-216-295-91	CONDCTOR, CHIP (2012) (EXCEPT E800)	
JR909	1-216-295-91	CONDCTOR, CHIP (2012)	
		< COIL >	
L001	1-408-976-21	INDUCTOR 33uH	
L004	1-408-976-21	INDUCTOR 33uH	
L005	1-410-521-11	INDUCTOR 100uH	
L006	1-410-514-11	INDUCTOR 27uH	
L016	1-410-513-11	INDUCTOR 22uH	
L017	1-410-524-41	INDUCTOR 180uH	
L018	1-410-521-11	INDUCTOR 100uH	
L202	1-410-521-11	INDUCTOR 100uH (E600B, E700B, E800BM/EE/EG)	
L251	1-410-521-11	INDUCTOR 100uH (E600B, E700B, E800BM)	
L260	1-408-982-21	INDUCTOR 100uH (E600, E700, E800)	
L801	1-408-948-00	INDUCTOR 220uH	
L802	1-408-948-00	INDUCTOR 220uH	
L803	1-408-982-21	INDUCTOR 100uH	
L804	1-408-982-21	INDUCTOR 100uH	
L810	1-408-985-21	INDUCTOR 180uH	
L812	1-408-982-21	INDUCTOR 100uH	
L851	1-408-980-21	INDUCTOR 68uH (E600B, E700B, E800BM)	
L901	1-408-976-21	INDUCTOR 33uH (E500, E600, E700)	
L901	1-408-974-21	INDUCTOR 22uH (E800)	
L902	1-408-972-21	INDUCTOR 15uH (E500, E600, E700)	
L902	1-408-948-00	INDUCTOR 220uH (E800)	
L908	1-410-521-11	INDUCTOR 100uH	
L909	1-408-977-21	INDUCTOR 39uH (E500, E600, E700)	
L909	1-408-978-21	INDUCTOR 47uH (E800)	
L951	1-408-972-21	INDUCTOR 15uH (E500, E600, E700)	
L952	1-408-982-21	INDUCTOR 100uH (E800)	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q002	8-729-421-19	TRANSISTOR UN2213	
Q005	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q006	8-729-421-19	TRANSISTOR UN2213	
Q007	8-729-216-21	TRANSISTOR 2SA1162-Y	
Q008	8-729-424-67	TRANSISTOR UN2216	
Q009	8-729-424-67	TRANSISTOR UN2216	
Q018	8-729-901-06	TRANSISTOR DTA144EK (E800EE/EG)	
Q027	8-729-421-19	TRANSISTOR UN2213 (E600B, E700B, E800BM/EE/EG)	
Q033	8-729-421-19	TRANSISTOR UN2213 (E600B, E700B, E800BM)	
Q034	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q035	8-729-421-19	TRANSISTOR UN2213 (E600B, E700B, E800BM)	
Q201	8-729-010-29	TRANSISTOR MSD601-RST1 (E600B, E700B, E800BM/EE/EG)	
Q810	8-729-421-19	TRANSISTOR UN2213	
Q811	8-729-921-12	TRANSISTOR 2SD1834	
Q817	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q818	8-729-421-19	TRANSISTOR UN2213	
Q819	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q840	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q841	8-729-216-21	TRANSISTOR 2SA1162-Y	
Q851	8-729-421-19	TRANSISTOR UN2213 (E600B, E700B, E800BM)	
Q904	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q906	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q907	8-729-230-49	TRANSISTOR 2SC2712-YG (E800)	
Q908	8-729-230-49	TRANSISTOR 2SC2712-YG (E800)	
Q909	8-729-230-49	TRANSISTOR 2SC2712-YG (E800)	
Q911	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q912	8-729-216-21	TRANSISTOR 2SA1162-Y	
Q928	8-729-421-22	TRANSISTOR UN2211 (E500, E600, E700)	
Q951	8-729-801-46	TRANSISTOR 2SC3064-F (E800)	
Q952	8-729-806-64	TRANSISTOR 2SA1237F-6B (E800)	
Q953	8-729-801-46	TRANSISTOR 2SC3064-F (E800)	
Q955	8-729-216-21	TRANSISTOR 2SA1162-Y (E800)	
Q956	8-729-900-51	TRANSISTOR DTA114TK (E800)	
		< RESISTOR >	
R002	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R003	1-216-054-00	METAL GLAZE 1.6K 5% 1/10W (E500, E600, E700)	
R004	1-216-667-11	METAL CHIP 4.7K 0.5% 1/10W	
R005	1-216-295-91	CONDCTOR, CHIP (2012)	
R009	1-216-659-11	METAL CHIP 2.2K 0.5% 1/10W	
R010	1-216-659-11	METAL CHIP 2.2K 0.5% 1/10W	
R012	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R014	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R070	1-216-049-00	METAL CHIP 1K 5% 1/10W (E600B, E700B, E800BM/EE/EG)	
R081	1-249-429-11	CARBON 10K 5% 1/4W (E600B, E700B, E800BM)	
R082	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R083	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R084	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R085	1-216-045-00	METAL CHIP 680 5% 1/10W	
R086	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R087	1-216-295-91	CONDCTOR, CHIP (2012)	
R088	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R204	1-216-198-91	METAL GLAZE 1K 5% 1/8W (E600B, E700B, E800BM/EE/EG)	
R205	1-216-073-00	METAL CHIP 10K 5% 1/10W (E600B, E700B, E800BM/EE/EG)	
R206	1-216-065-00	METAL CHIP 4.7K 5% 1/10W (E600B, E700B, E800BM/EE/EG)	
R207	1-216-109-00	METAL CHIP 330K 5% 1/10W (E600B, E700B, E800BM/EE/EG)	
R208	1-249-421-11	CARBON 2.2K 5% 1/4W (E600B, E700B, E800BM/EE/EG)	F
R262	1-216-035-00	METAL CHIP 270 5% 1/10W (E600, E700, E800)	
R263	1-216-067-00	METAL CHIP 5.6K 5% 1/10W (E600, E700, E800)	
R265	1-216-033-00	METAL CHIP 220 5% 1/10W (E600, E700, E800)	
R266	1-216-051-00	METAL CHIP 1.2K 5% 1/10W (E600, E700, E800)	
R267	1-216-035-00	METAL CHIP 270 5% 1/10W (E600, E700, E800)	
R268	1-216-097-00	METAL CHIP 100K 5% 1/10W (E600, E700, E800)	
R269	1-216-081-00	METAL CHIP 22K 5% 1/10W (E600B, E700B, E800BM/EE/EG)	
R270	1-216-071-00	METAL CHIP 6.8K 5% 1/10W (E600B, E700B, E800BM/EE/EG)	
R271	1-216-079-00	METAL CHIP 18K 5% 1/10W (E600, E700, E800)	
R276	1-216-073-00	METAL CHIP 10K 5% 1/10W (E600, E700, E800)	
R801	1-216-023-00	METAL CHIP 82 5% 1/10W	
R802	1-216-037-00	METAL CHIP 330 5% 1/10W	
R803	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R805	1-216-610-11	METAL CHIP 20 0.50% 1/10W	
R806	1-216-023-00	METAL CHIP 82 5% 1/10W	
R807	1-216-023-00	METAL CHIP 82 5% 1/10W	
R811	1-216-037-00	METAL CHIP 330 5% 1/10W	
R812	1-216-023-00	METAL CHIP 82 5% 1/10W	
R815	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R816	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	

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Ref. No.	Part No.	Description	Remark
R817	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R835	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R836	1-216-047-00	METAL CHIP 820 5% 1/10W	
R838	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R842	1-216-622-11	METAL CHIP 62 0.50% 1/10W	
R843	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R844	1-249-423-11	CARBON 3.3K 5% 1/4W	F
R846	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R847	1-216-078-00	METAL GLAZE 16K 5% 1/10W	
R856	1-216-033-00	METAL CHIP 220 5% 1/10W	
R857	1-216-033-00	METAL CHIP 220 5% 1/10W	
R858	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R861	1-216-202-00	METAL GLAZE 1.5K 5% 1/8W	
R862	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R863	1-216-047-00	METAL CHIP 820 5% 1/10W	
R901	1-216-049-00	METAL CHIP 1K 5% 1/10W (E500, E600, E700)	
R901	1-216-039-00	METAL CHIP 390 5% 1/10W (E800)	
R902	1-216-033-00	METAL CHIP 220 5% 1/10W (E800)	
R902	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E600, E700)	
R903	1-216-065-00	METAL CHIP 4.7K 5% 1/10W (E800)	
R904	1-216-295-91	CONDCTOR, CHIP (2012) (E800)	
R906	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R907	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R908	1-216-043-91	METAL GLAZE 560 5% 1/10W (E500, E600, E700)	
R908	1-216-033-00	METAL CHIP 220 5% 1/10W (E800)	
R910	1-216-025-00	METAL CHIP 100 5% 1/10W (E800)	
R913	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (E800)	
R914	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R915	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R916	1-216-039-00	METAL CHIP 390 5% 1/10W (E800)	
R916	1-216-295-91	CONDCTOR, CHIP (2012) (E500, E600, E700)	
R917	1-216-045-00	METAL CHIP 680 5% 1/10W	
R918	1-216-043-91	METAL GLAZE 560 5% 1/10W (E800)	
R919	1-216-039-00	METAL CHIP 390 5% 1/10W (E800)	
R920	1-216-043-91	METAL GLAZE 560 5% 1/10W (E800)	
R921	1-216-049-00	METAL CHIP 1K 5% 1/10W (E800)	
R922	1-216-041-00	METAL CHIP 470 5% 1/10W (E800)	

Ref. No.	Part No.	Description	Remark
R924	1-216-027-00	METAL CHIP 120 5% 1/10W (E800)	
R925	1-216-045-00	METAL CHIP 680 5% 1/10W (E800)	
R926	1-216-025-00	METAL CHIP 100 5% 1/10W (E800)	
R927	1-216-067-00	METAL CHIP 5.6K 5% 1/10W (E800)	
R928	1-216-071-00	METAL CHIP 8.2K 5% 1/10W (E800)	
R929	1-216-043-91	METAL GLAZE 560 5% 1/10W (E800)	
R936	1-216-039-00	METAL CHIP 390 5% 1/10W	
R937	1-216-039-00	METAL CHIP 390 5% 1/10W	
R938	1-216-047-00	METAL CHIP 820 5% 1/10W (E500, E600, E700)	
R938	1-216-049-00	METAL CHIP 1K 5% 1/10W (E800)	
R939	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R951	1-216-689-11	METAL CHIP 39K 0.5% 1/10W (E800)	
R952	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W (E800)	
R953	1-216-661-11	METAL CHIP 2.7K 0.5% 1/10W (E800)	
R954	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W (E800)	
R955	1-216-639-11	METAL CHIP 330 0.5% 1/10W (E800)	
R956	1-216-627-11	METAL CHIP 100 0.5% 1/10W (E800)	
R957	1-216-661-11	METAL CHIP 2.7K 0.5% 1/10W (E800)	
R958	1-216-051-00	METAL CHIP 1.2K 5% 1/10W (E800)	
R959	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W (E800)	
R960	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (E800)	
R961	1-216-065-00	METAL CHIP 4.7K 5% 1/10W (E800)	
R962	1-216-679-11	METAL CHIP 15K 0.5% 1/10W (E800)	
R963	1-216-682-11	METAL CHIP 20K 0.5% 1/10W (E800)	
R964	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (E800)	
R965	1-216-107-00	METAL CHIP 270K 5% 1/10W (E800)	
R966	1-216-295-91	CONDCTOR, CHIP (2012) (E800)	
R967	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (E800)	

Ref. No.	Part No.	Description	Remark
R968	1-216-025-00	METAL CHIP 100 5% 1/10W (E500,E600,E700)	
R969	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (E500,E600.E700)	
R970	1-216-041-00	METAL CHIP 470 5% 1/10W (E500,E600,E700)	
R971	1-216-036-00	METAL CHIP 300 5% 1/10W (E500,E600,E700)	
R971	1-216-295-91	CONDCTOR, CHIP (2012) (E800)	
R972	1-216-295-91	CONDCTOR, CHIP (2012) (E800)	
R973	1-208-814-11	METAL CHIP 22K 0.50% 1/10W (E800)	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV201	1-223-235-11	RES, ADJ, CARBON 470 (SECAM DET) (E600B,E700B,E800BM/EE/EG)	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T201	1-409-467-11	COIL (TRAP 7.8K) (E600B,E700B,E800BM/EE/EG)	

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MISCELLANEOUS

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Ref. No.	Part No.	Description	Remark
51	1-467-945-11	SWITCH BLOCK, CONTROL (E800VC)	
51	1-467-945-21	SWITCH BLOCK, CONTROL (E800BM)	
51	1-467-945-31	SWITCH BLOCK, CONTROL (E800NP)	
51	1-467-945-41	SWITCH BLOCK, CONTROL (E800NC)	
51	1-467-945-51	SWITCH BLOCK, CONTROL (E800AP)	
51	1-467-945-71	SWITCH BLOCK, CONTROL (E800EE/EG)	
51	1-467-945-81	SWITCH BLOCK, CONTROL (E800IT)	
51	1-467-945-91	SWITCH BLOCK, CONTROL (E700EX/UX)	
51	1-467-946-11	SWITCH BLOCK, CONTROL (E500UX)	
51	1-467-946-21	SWITCH BLOCK, CONTROL (E500VP)	
51	1-467-946-31	SWITCH BLOCK, CONTROL (E500AP)	
51	1-467-946-41	SWITCH BLOCK, CONTROL (E700B)	
51	1-467-946-51	SWITCH BLOCK, CONTROL (E500CP)	
51	1-467-946-61	SWITCH BLOCK, CONTROL (E500IT)	
51	1-467-946-71	SWITCH BLOCK, CONTROL (E700:NC1/NC2)	
51	1-467-946-81	SWITCH BLOCK, CONTROL (E700IT/VP)	
51	1-473-003-11	SWITCH BLOCK, CONTROL (E700AP)	
* 104	1-769-397-11	WIRE, FLAT TYPE 19P	
110	1-769-355-11	CABLE, FLEXIBLE FLAT (FCP-6) (E500CP,E600B,E700B/EX/UX,E800BM/NP/VC)	
118	1-555-110-00	CABLE, PIN (EXCEPT E500)	
158	1-500-144-11	HEAD, FE	
165	1-506-485-11	PIN, CONNECTOR 6P	
M901	8-848-618-12	DRUM ASSY (DZH-54A-R) (E500)	
M901	8-848-619-12	DRUM ASSY (DZH-66A-R) (EXCEPT E500)	
260	1-762-076-11	SWITCH, ROTARY	

Ref. No.	Part No.	Description	Remark
M902	1-698-409-11	MOTOR, DC (CAPSTAN)	
M903	X-3943-883-1	MOTOR ASSY, CAM	

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ACCESSORIES & PACKING MATERIALS

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Ref. No.	Part No.	Description	Remark
	1-467-950-11	REMOTE COMMANDER (RMT-V159D) (E600B,E700B)	
	1-467-950-21	REMOTE COMMANDER (RMT-V159B) (E600VP,E700:NC1/NC2,E700AP/VP)	
	1-467-950-31	REMOTE COMMANDER (RMT-V159A) (E800BM)	
	1-467-950-41	REMOTE COMMANDER (RMT-V159) (E800AP/EE/EG/NC/NP/VC)	
	1-467-950-51	REMOTE COMMANDER (RMT-V159E) (E500AP/CP/VP)	
	1-467-954-11	REMOTE COMMANDER (RMT-V159J) (E700IT)	
	1-467-954-21	REMOTE COMMANDER (RMT-V159H) (E800IT)	
	1-467-954-31	REMOTE COMMANDER (RMT-V159K) (E500IT)	
	1-467-965-11	REMOTE COMMANDER (RMT-V163)(E700EX/UX)	
	1-467-965-21	REMOTE COMMANDER (RMT-V163A) (E500UX)	
⚠	1-574-056-11	CORD, POWER (E500AP/CP/IT/VP,E600, E700:NC1/NC2,E700AP/B/IT/VP,E800VC) (250V/2.5A)	
⚠	1-575-131-11	CORD, POWER (E800AP/BM/EE/EG/IT/NC/NP) (250V/2.5A)	
⚠	1-590-865-22	CORD, POWER (E500UX,E700EX/UX) (250V/5A)	
	1-696-593-11	CORD, CONNECTION (AERIAL CABLE, 1.5m) (PAL) (EXCEPT 700EX)	
	1-696-861-11	CORD, CONNECTION (AUDIO CABLE, 1.5m) (EXCEPT E500,E700EX)	
	1-770-321-11	ADAPTOR, CONVERSION 6P (E800EE/EG)	
	3-759-299-21	MANUAL, INSTRUCTION (E800EE/EG) (ENGLISH,CZECH,POLISH,RUSSIAN)	
	3-759-299-41	MANUAL, INSTRUCTION (E800AP/NC) (DUTCH)	
	3-759-299-51	MANUAL, INSTRUCTION (E800BM) (FRENCH)	
	3-759-299-61	MANUAL, INSTRUCTION (E800NP) (SPANISH,PORTUGUESE)	
	3-759-299-71	MANUAL, INSTRUCTION (E800NC/VC) (FRENCH,GERMAN)	
	3-759-299-81	MANUAL, INSTRUCTION (E800NC) (SWEDISH, DANISH,FINNISH)	
	3-759-299-91	MANUAL, INSTRUCTION (E800IT/VC) (ITALIAN)	
	3-759-856-11	MANUAL, INSTRUCTION (E700EX/UX) (ENGLISH)	
	3-759-856-41	MANUAL, INSTRUCTION (E700:NC1,E70AP) (DUTCH)	
	3-759-856-51	MANUAL, INSTRUCTION (E600B,E700B (FRENCH)	
	3-759-856-61	MANUAL, INSTRUCTION (E700:NC2) (SPANISH, PORTUGUESE)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
	3-759-856-71	MANUAL, INSTRUCTION (E600VP, E700:NC1, E700VP) (FRENCH, GERMAN)	
	3-759-856-81	MANUAL, INSTRUCTION (E700:NC1) (SWEDISH, DANISH, FINNISH)	
	3-759-856-91	MANUAL, INSTRUCTION (E600VP, E700IT/VP) (ITALIAN)	
	3-759-957-11	MANUAL, INSTRUCTION (E500UX) (ENGLISH)	
	3-759-957-41	MANUAL, INSTRUCTION (E500AP) (DUTCH)	
	3-759-957-61	MANUAL, INSTRUCTION (E500CP) (SPANISH, PORTUGUESE)	
	3-759-957-71	MANUAL, INSTRUCTION (E500AP/VP) (FRENCH, GERMAN)	
	3-759-957-81	MANUAL, INSTRUCTION (E500AP) (SWEDISH, DANISH, FINNISH)	
	3-759-957-91	MANUAL, INSTRUCTION (E500IT/VP) (ITALIAN)	
*	3-960-470-01	INDIVIDUAL CARTON (E800AP/IT/NC/NP/VC)	
*	3-960-470-11	INDIVIDUAL CARTON (E800BM)	
*	3-960-470-31	INDIVIDUAL CARTON (E800EE)	
*	3-960-470-41	INDIVIDUAL CARTON (E800EG)	
*	3-960-471-01	CUSHION (UPPER) (EXCEPT E600)	
*	3-960-472-01	CUSHION (LOWER) (EXCEPT E600)	
*	3-961-747-01	INDIVIDUAL CARTON (E700:NC1/NC2, E700AP/IT/VP)	
*	3-961-747-11	INDIVIDUAL CARTON (E700B)	
*	3-961-747-21	INDIVIDUAL CARTON (E700EX/UX)	
*	3-961-889-01	CUSHION (UPPER) (E600)	
*	3-961-890-01	CUSHION (LOWER) (E600)	
*	3-961-891-01	INDIVIDUAL CARTON (E600VP)	
*	3-961-891-11	INDIVIDUAL CARTON (E600B)	
*	3-961-999-01	INDIVIDUAL CARTON (E500AP/CP/IT/VP)	
*	3-961-999-11	INDIVIDUAL CARTON (E500UX)	

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HARDWARE LIST

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#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2
#2	7-685-646-81	SCREW +BVTP 3X8 TYPE2
#3	7-621-255-15	SCREW +B 2X3
#4	7-682-547-04	SCREW +P 3X6
#5	7-685-649-79	SCREW +BVTP 3X14 TYPE2
#6	7-685-646-79	SCREW (3X8)
#7	7-624-106-04	STOP RING 3.0, TYPE -E
#8	7-682-645-01	SCREW +PS 3X4

Note.
NC1 : Belgium, North European
NC2 : Spanish, Portugal

6-1. SYSTEM CONTROL—VIDEO BLOCK INTERFACE (MA215 BOARD IC201)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREAD-ING	PB	PB・PAUSE	SLOW	×2	PICTURE SEARCH		REC	REC・PAUSE
												CUE	REVIEW		
V・PB	IC201(95)	O	H	H	H	H	H	L	L	L	L	L	L	H	H
RF SW P (SW25)	IC201①	O	＊1	＊1	＊1	＊1	＊1	＊1	＊1	＊1	＊1	＊1	＊1	＊1	＊1
Q VD/V MUTE	IC201②	O	L	L	L	L	L	＊2	＊3	＊3	＊3	＊3	＊3	L	L
NA・SP	IC201(91)	O	＊4	＊4	＊4	＊4	＊4	＊5	＊5	＊5	＊5	＊5	＊5	＊4	＊4
LP	IC201⑫	O	＊8	＊8	＊8	＊8	＊8	＊5	＊5	＊5	＊5	＊5	＊5	＊8	＊8
REC・P	IC201⑤	O	L	L	L	L	L	L	L	L	L	L	L	L	H
REC	IC201(96)	O	L	L	L	L	L	L	L	L	L	L	L	H	H
V SYNC	IC201(66)	I	＊6	＊6	＊6	＊6	＊6	＊6	＊6	＊6	＊6	＊6	＊6	＊6	＊6
OSD MUTE	IC201(71)	O	＊7	＊7	＊7	＊7	＊7	＊7	＊7	＊7	＊7	＊7	＊7	＊7	＊7
CTL REC	IC201(94)	O	L	L	L	L	L	L	L	L	L	L	L	H	L
NTSC	IC201㉗	O	L	L	L	L	L	L	L	L	L	L	L	L	L
JOG	IC201(97)	O	L	L	L	L	L	L	H	H	H	H	H	L	L
CRC SETTEI	IC201(76)	O	L	L	L	L	L	L	L	L	L	L	L	＊9	＊9

＊1. 25Hz 50% duty pulse synchronizing with drum rotation.
＊2. Normally "L" . "H" when the video signal is not detected.
＊3. V period "H" pulse.
＊4. "L" in the SP mode. Selected according to the recording mode.
＊5. Selected according to the tape recording mode.

Mode / Signal	SP	LP	EP
SP(91)	L	H	H
LP(92)	L	L	H

＊6. Composite sync signal (positive).
＊7. "H" when menu screen or gray back screen.
＊8. Selected by REC mode, "L" in the SP mode.
＊9. "H" while APC is set.

6-2. SYSTEM CONTROL–SERVO PERIPHERAL CIRCUIT INTERFACE (MA-215 BOARD IC201)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB • PAUSE	SLOW	×2	PICTURE SEARCH		REC	REC • PAUSE	PB INDEX WRT/ERS
												CUE	REVIEW			
REC CTL	IC201⑦	O	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	
$\overline{\text{CAP STOP}}$	IC201㊳	O (O.D)	L	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	L	* 3	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	
STEP PLS	IC201㉔	O	L	L	L	L	L	L	L	* 2	L	L	L	L	L	
CTL REC	IC201(94)	O	L	L	L	L	L	L	L	L	L	L	L	H	L	H
CTL INDEX	IC201(96)	O	L	L	L	L	L	L	L	L	L	L	L	L	L	H
PB CTL	IC201(67)	I	H	* 6	* 6			* 1	H/L	* 2	* 6	* 6	* 6	* 1	H	
DRUM PG	IC201(68)	I	* 4	* 7	* 7	* 5	* 5	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	
DRUM FG	IC201(69)	I	* 4	* 8	* 8	* 5	* 5	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	
CAP FG	IC201(70)	I	H/L	* 6	* 6	* 5	* 5	* 6	H/L	* 9	* 6	* 6	* 6	* 6	H/L	
CAP DA	IC201(73)	O	* 10	* 10	* 10	* 10	* 10	* 11	* 10	* 10	* 11	* 11	* 11	* 11	* 10	
DRUM DA	IC201(74)	O	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12	
CTL STEP	IC201(93)	O	L	L	L	L	L	L	L	* 13	L	L	L	L	L	

* 1. 25Hz pulse.
* 2. Pulse in tape running.
* 3. Reverse logic pulse of STEP PLS.
* 4. "L" when drum rotation stops
* 5. Unstable period pulse.
* 6. Pulse of period proportionate to tape speed.
* 7. 25Hz pulse.
* 8. 300Hz pulse.
* 9. Pulse in tape running.
* 10. Approx. 2 msec. period "H" or "L" pulse.
* 11. Approx. 1.5 msec. period "H" or "L" pulse.
* 12. Approx. 3 msec. period "H" or "L" pulse.
* 13. "H" in FWD direction and STEP drive.

6-3. SYSTEM CONTROL–MECHANISM BLOCK INTERFACE (MA-215 BOARD IC201)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOAD-ING	TAPE THREAD-ING	TAPE UNTH-READING	STOP	FF	REW	PB	PB · PAUSE	SLOW	×2	PICTURE SEARCH		REC	REC · PAUSE
															CUE	REVIEW		
CAM LOAD	IC201⑬	O	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L
CAM UNLOAD	IC201⑭	O	L	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L
CAM 12V	IC201㉛	O		H	L	H	L											
MODE 1	IC201(58)	I	H	L	L	* 1	* 1	H	H	H	H	H	H	H	H	L	H	H
MODE 2	IC201(57)	I	L	L	L	* 1	* 1	L	L	L	H	H	H	H	H	H	H	H
MODE 3	IC201(56)	I	L	L	L	* 1	* 1	H	H	H	L	H	H	L	L	H	L	H
MODE 4	IC201(55)	I	L	H	H	* 1	* 1	H	L	L	L	L	L	L	L	L	L	L
REC PRF	IC201⑮	I	L	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2
T REEL FG	IC201(64)	I	H/L	H/L	H/L	H/L	H/L	H/L	* 3	* 3	* 3	H/L	* 3	* 3	* 3	* 3	* 3	H/L
S REEL FG	IC201(63)	I	H/L	H/L	H/L	* 3	* 3	H/L	* 3	* 3	* 3	H/L	* 3	* 3	* 3	* 3	* 3	H/L
END LED	IC201㉜	O (O.D)	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4
CAP TRQ 1	IC201㉞	O (O.D)											* 1					
CAP TRQ 2	IC201㉝	O (O.D)										L	* 1					L
CAP TRQ 3	IC201⑧	O (O.D)							H	H			* 1		H	H		
$\overline{\text{CAP STOP}}$	IC201㊳	O (O.D)	L	L	L	H	H	L	H	H	H	L	* 5	H	H	H	H	L
CAP RVS	IC201(72)	O	H			L	H	H/L	L	H	L	L	L/* 5	L	L	H	L	L
CAP DA	IC201(73)	O																
T SENS	IC201⑰	I	* 4	* 4	* 4	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7
S SENS	IC201⑱	I	* 4	* 4	* 4	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7	* 7

* 1. Uncertainty
* 2. "L" when the erasing protection tab is bent, "H" when not bent.
* 3. Pulse of period proportionate to reel rotating speed.
* 4. Approx. 2 msec. period "H" pulse.
* 5. Pulse in tape running.
* 6. "L" only in tape running and when CAP RVS is "H".
* 7. Nomally "L". 2 msec. period "H" pulse when tape top or tape end is detected.

6-4. SYSTEM CONTROL –SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA-215 BOARD IC201)

Signal	Pin No.	I/O	I/O Level
$\overline{\text{ASURA RESET}}$	IC201㊵	I	Normally "H". "L" when service interruption is detected or restored.
$\overline{\text{ASURA CS}}$	IC201㊹	I	Chip select signal from the timer microprocessor. V period "L" pulse.
SI BUS	IC201㊺	I	Serial communication data from the timer microprocessor. V period "L" pulse.
SO BUS	IC201㊻	O	Serial communication data to the timer microprocessor. V period "L" pulse.
S CLK	IC201㊼	I	Serial communication clock with the timer microprocessor. V period "L" pulse.

6-5. SYSTEM CONTROL –AUDIO BLOCK INTERFACE (MA-215 BOARD IC201)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE LOADING	TAPE UNLOADING	PB	PB • PAUSE	SLOW	×2	PICTURE SEARCH		REC	REC • PAUSE
												CUE	REVIEW		
AF ENVELOP	IC201(61)	I	AF RF envelope signal input pin for auto tracking.												
NA PB	IC201(83)	O	L	L	L	L	L	H	H	H	H	H	H	L	L
A MUTE	IC201㊲	O (O.D)	L	L	L	L	L	* 1	H	H	H	H	H	L	L
$\overline{\text{NA SP}}$	IC201(91)	O	* 2	* 2	* 2	* 2	* 2	* 3	* 3	* 3	* 3	* 3	* 2	* 2	* 2
NA REC•$\overline{\text{P}}$	IC201⑪	O	L	L	L	L	L	L	L	L	L	L	L	H	L
AF REC•$\overline{\text{P}}$	IC201④	O	L	L	L	L	L	L	L	L	L	L	L	H	L
AF SWP	IC201(100)	O	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1	* 1
AF SW POSITION	IC201(51)	I	Input pin for AF switching position adjustment.												
$\overline{\text{FULL ERS}}$	IC201㊱	O (O.D)	H	H	H	H	H	H	H	H	H	H	H	L	H

* 1. 25Hz 50% duty pulse approximately 5 msec. delayed from RF SW P.
* 2. Selected according to SP/LP selector. "L" in the SP mode, "H" in the LP mode.
* 3. Selected according to the tape recording mode. "L" in the SP mode, "H" in the LP mode.

6-6. SYSTEM CONTROL–RF MODULATOR, INPUT SELECTION BLOCK INTERFACE (MA-215 BOARD IC201)

Signal	Pin No.	I/O	I/O Level
TV/VTR	IC503㉓	O	"L" when RF modulator through.

Signal	Pin No.	I/O	I/O Level		
			TUNER	LINE 1	LINE 2
LINE 1	IC201(79)	O	L	H	L
LINE 2	IC201(82)	O	L	L	H

6-7. SERVO/SYSTEM CONTROL MICROPROCESSOR CXP87240-050Q (MA-215 BOARD IC201) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	RF SWP	O	RF switching pulse.
2	QVD	O	False VD.
3	QHD ENBL	O	False HD voltage level control.
4	AF REC P	O	Hi-Fi recording control.
5	REC P	O	Recording signal.
6	FE ON	O	Flying erase.
7	REC CTL	I/O	REC CTL.
8	CAP TRQ3	O	Capstan current control.
9	RENTAL	I/O	YNR control.
10	EDIT	O	EDIT control.
11	NA REC P	I/O	Normal audio recording mode. H : recording mode.
12	LP	O	H in LP mode.
13	CAMLOAD	I/O	Loading motor rotaing direction control.
14	CAMUNLOAD	I/O	
15	C IN/REC PRF	O	Cassette IN and erasing protection tab detection switch input.
16	HEAD CONT	I/O	Head change control.
17	T SENS	I	Tape top sensor input.
18	S SENS	I	Tape end sensor input.
19	MOD CONT	O	Modulator power supply ON/OFF control.
20	AV CONT	O	ON/OFF control.
21	ME SECAM	I	H : ME SECAM
22	SECAM	I	H : SECAM
23	VPB	O	Reverse VPB, H : P-OFF.
24	STEP PLS	O	Step pulse, H : Capstan step driving.
25	PAL 60	O	H : HTSC on PAL TV.
26	3.58 NTSC	O	Tuner audio selection signal. H : 3.58 XTAL.
27	NTSC	O	H : PAL.
28	E TAPE	O	H : HG tape. (Not used. (open))
29	BIL	O	H output : BS bilingual mode. (Not used. (open))
30	C+CONT	O	CANAL+control.
31	CAM 12V	O	CAM motor voltage change.
32	END LED	O	Top/end detection lamp lighting control.
33	CAP TRQ 2	O	Capstan current control signal 2. L : FF/REW to STOP.
34	CAP TRQ 1	O	Capstan current control signal 1. L : SLOW speed down.
35	PAL	O	H : PAL (Not used. (open))
36	FULL ERS	O	Full erase control. (Not used. (open))
37	A MUTE	O	Audio mute. H : mute.
38	CAP STOP	O	Capstan stop reversal. L : Capstan stop.
39	MP	I	Fixed to L.
40	ASURA RESET	I	System reset input.
41	VSS		GND.
42	XTAL		System clock 16MHz.
43	EXTAL		
44	ASURA CS	I	Chip select signal. (III-6 board IC302)
45	SI BUS	I	Serial communication signal.
46	SO BUS	O	
47	S CLK	I	
48	DEST 2	I	Destination judge input. (Not used. (open))
49	AD	I	AD input for APC 2.
50	AC ON LINE	O	AC ON LINE output.
51	AFSW POS	I	Hi-Fi switching position adjustment.
52	A VSS		GND.
53	A VREF		AD port reference input. (UNSW 5V)
54	A VDD		UNSW 5V.
55	MODE 4	I	Cam encoder data 4.
56	MODE 3	I	Cam encoder data 3.
57	MODE 2	I	Cam encoder data 2.
58	MODE 1	I	Cam encoder data 1.
59	DEW	I	Condensation sensor input. "H" when condensation.
60	RF ENV	I	Video playback signal envelope.
61	AF ENV	I	Hi-Fi audio playback signal envelope.
62	RF SW POS	I	Video head switching position adjustment.
63	S REEL FG	I	S side reel FG input.
64	T REEL FG	I	T side reel FG input.
65	NT JUDGE	I	4.43/3.58 judge input. (Not used. (open))
66	V SYNC	I	Composite sync input.
67	PB CTL	I	Servo CTL input.
68	DRM PG	I	Drum PG input.
69	DRM FG	I	Drum FG input.
70	CAP FG	I	Capstan FG input.
71	OSD MUTE	O	Video output mute signal. H : Gray back. (Not used. (open))
72	CAP RVS	O	Capstan reverse control. H : Reverse
73	CAP DA	O	Capstan D/A output.
74	DRM DA	O	Drum D/A output.
75	EP	O	L : EP (Not used. (open))
76	ORC SETTEI	O	H : ORC measure.
77	VD CTL	I	CTL counter input. (Fixed to "H".)
78	DEST 1	I	Destination judge input.

Pin No.	Signal	I/O	Function
79	LINE 1	O	Input selection control signal.
80	SO 1	I/O	Expanded port data.
81	CLK 1	I/O	Expanded port clock.
82	LINE 2	O	Input selection control signal.
83	NAPB	O	Audio output control signal. H : Normal audio playback.
84	PWM	O	PWM output for APC2.
85	W TAPE	O	H : Wrong tape.
86	N. C.	I	Not used. (open)
87	TX		Not used. (open)
88	VSS		GND.
89	VDD		UNSW 5V.
90	VDD		UNSW 5V.
91	NA SP	O	For normal audio. L : SP mode.
92	ENV GAIN	O	Video envelope gain change.
93	CTL STEP	O	CTL amp, STEP operation control.
94	CTL REC	O	H : CTL write.
95	$\overline{\text{V PB}}$	O	Video system playback mode reversal. L : Playback.
96	CTL INDEX	O	Index control signal rewrite. H : Erase.
97	JOG	O	H : JOG
98	REC	O	Head amplifier recording power supply.
99	$\overline{\text{SP}}$	O	L : SP mode.
100	$\overline{\text{AF}}$ SWP	O	AF switching pulse.

6-8. TIMER/TUNER CONTROL MICROPROCESSOR MB89096PF-G-173/174/175-BND (HI-6 BOARD IC302) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	CL 1		Liquid crystal oscillation pin (32 kHz). (for clock)
2	CL 0		
3	MOD 0 (GND)		Operation mode specification pin (GND when used).
4	MOD 1 (GND)		
5	X 0		Liquid crystal oscillation pin (12 MHz). (for main)
6	X 1		
7	VSS		GND.
8	$\overline{\text{RESET}}$	I	Reset input pin.
9—12	N. C.	O	Not used (open)
13	$\overline{\text{S SIGHT CS}}$	O	S SIGHT chip select signal.
14	$\overline{\text{TUNER V}}$	I	TUNER V Sync signal input.
15	$\overline{\text{ASURA RESET}}$	O	S/S micom (MA-215 board IC201) reset signal.
16	$\overline{\text{CG CS}}$	O	Character generator chip select signal. (MA-215 board IC401)
17	$\overline{\text{POWER FAIL}}$	I	Power voltage drop detection pin.
18	$\overline{\text{V SYNC}}$	I	V sync input.
19	POWER CONT	O	Main power supply control signal.
20	$\overline{\text{ASURA CS}}$	O	S/S micom chip select signal. (MA-215 board IC201)
21	H DET	I	H DET signal input.
22	$\overline{\text{PDC CS}}$	O	PDC chip select signal. (PV-12 board IC652)
23	SCL	I/O	I²C BUS (clock)
24	SDA	I/O	I²C BUS (data)
25	NOT SYNC	I/O	Sync detection error.
26	C DET	I	Not used
27	F MONO	O	Tuner Audio select.
28	CMOD	I	Normally GND. 5V : Connected to micom jig.
29	MAIN/$\overline{\text{SAP}}$	O	MAIN/SAP judge signal output.
30	$\overline{\text{STEREO}}$	I/O	Stereo judge input.
31	$\overline{\text{SAP}}$	I/O	MAIN/SAP judge input.
32	SIRCS IN	I	Remote control input.
33	PLL CLOCK	O	Tuner PLL clock.
34	PLL DATA	O	Tuner PLL data.
35	PLL ENABLE	O	Tuner chip select.
36	TA MUTE	O	Tuner audio mute.
37	SIRCS OUT	O	SIRCS signal output.
38	$\overline{\text{A PRST}}$	O	Tuner sensitivity select signal for auto preset.
39—42	N. C.	O	Not used. (open)
43—48	S20—S15	O	FDP segment 20—15.
49	VDD		D 6V.
50—52	S14—S12	O	FDP segment 14—12.
53	VFDP		−30V.
54—57	S11—S8	O	FDP segment 11—8.
58	VSS		GND
59—65	S7—S1	O	FDP segment 7—1.
66	8G	O	FDP grid 8.
67	VDD		D 6V.
68—74	7G—1G	O	FDP Grid 7—1.
75	$\overline{\text{LED D CS}}$	O	LED driver chip select signal. (MF-254 board IC401)
76	POWER CONT 2	O	Tuner power supply control.
77	SI BUS	I	Serial data input.
78	SO BUS	O	Serial data output.
79	S CLK	O	Serial communication clock.
80	MEM CS	O	EEPROM CS. (HI-6 board IC301)
81	MEM CLK	O	EEPROM CLOCK.
82	MEM DATA	I/O	EEPROM DATA.
83	AVSS		GND.
84	AFT	I	Ground wave tuner AFT detection.
85	AD 1	I	Not used.
87—91	A/D 3—A/D7	I	Membrane key reading.
92	AVDD	I	D 6V.
93	A/D8	I	Membrane key reading.
94	DEST 1	I	Destination discrimination.
95	DEST 2	I	
96	A/D 11	I	Membrane key reading.
97	LANC IN	I	LANC input.
98	LANC OUT	O	LANC output.
99	BUZZER	O	Buzzer output/clock liquid crystal frequency division output.
100	VDD		D 6V

※Note MB89096PF-G-173-BND : E500CP/UX, E700 : NC2, E700EX/UX, E800NP
-174-BND : E500AP, E600B, E700 : NC1, E700AP/B, E800AP/BM/NC
-175-BND : E500IT/VP, E600VP, E700IT/VP, E800EE/EG/IT/VC

Note.
NC1 : Belgium, North European
NC2 : Spanish, Portugal

SECTION 7
ADJUSTMENTS

7-1. MECHANICAL ADJUSTMENTS

For the procedures how to adjust and check the mechanism, as well as how to replace mechanical parts, refer to the VHS Mechanical Adjustment Manual IV (H MECHANISM) (9-973-623-11).
However, for the procedures how to set the Track Shift mode, refer to the following text.

7-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 7-46 for the adjustment.

2-1. PREPARATION BEFORE ADJUSTMENT

2-1-1. Equipment Required

The measuring instruments used for this alignment include:

[Instruments for Use]

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30MHz or more, with delay mode (A probe 10 : 1 should be used unless otherwise specified.)
3) Frequency counter (8 columns or more)
4) PAL and SECAM pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion rate meter
10) Sound dual multiplex signal generator
11) Alignment tape
    Part No : H7099052H (MH-2)
13) Extension cable
    ① HI-6 Board
    - HI-6 board CN301 ↔ MA-215 board CN904
    - HI-6 board CN302 ↔ MA-215 board CN905
      Part No : J-6090-053-A (19 pin)

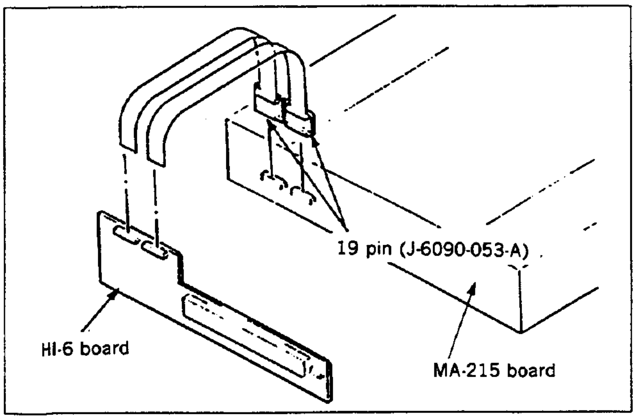


Fig. 7-2-1.

② RV-37 Board
- RV-37 board CN001 ↔ MA-215 board CN908
  Part No : J-6090-025-A (14 pin)
- RV-37 board CN002 ↔ MA-215 board CN907
  Part No : J-6090-043-A (20 pin)
- RV-37 board CN801 ↔ Drum Head flexible
  Part No : J-6090-054-A (13 pin)

③ HF-34 Board
- HF-34 board CN101 ↔ MA-215 board CN902
- HF-34 board CN102 ↔ MA-215 board CN901
  Part No : J-6090-047-A (11 pin)

④PV-12 Board
- PV-12 board CN601 ↔ MA-215 board CN903
  Part No : J-6090-048-A (10 pin)

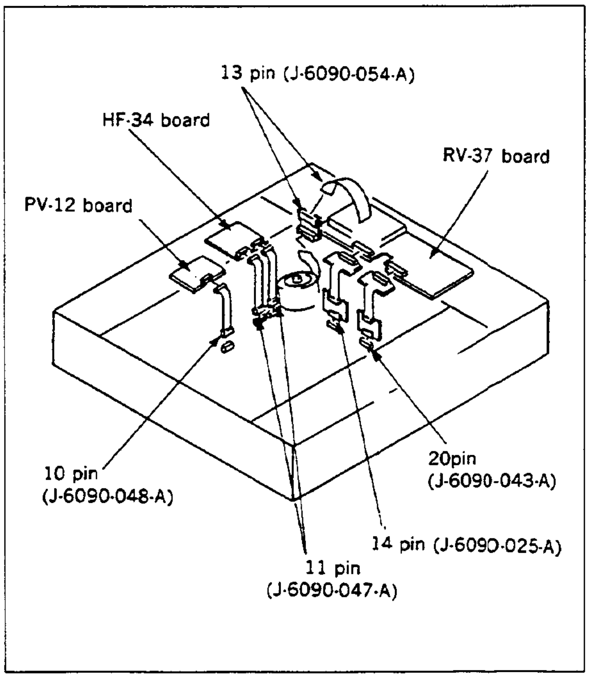


Fig. 7-2-2.

2-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown is the following diagram.

Unless otherwise specified, place the switches and controls of this unit in the following positions:

- PROGRAM switch ··LINE 1
- TAPE SPEED (SP/LP) switch ·······························SP

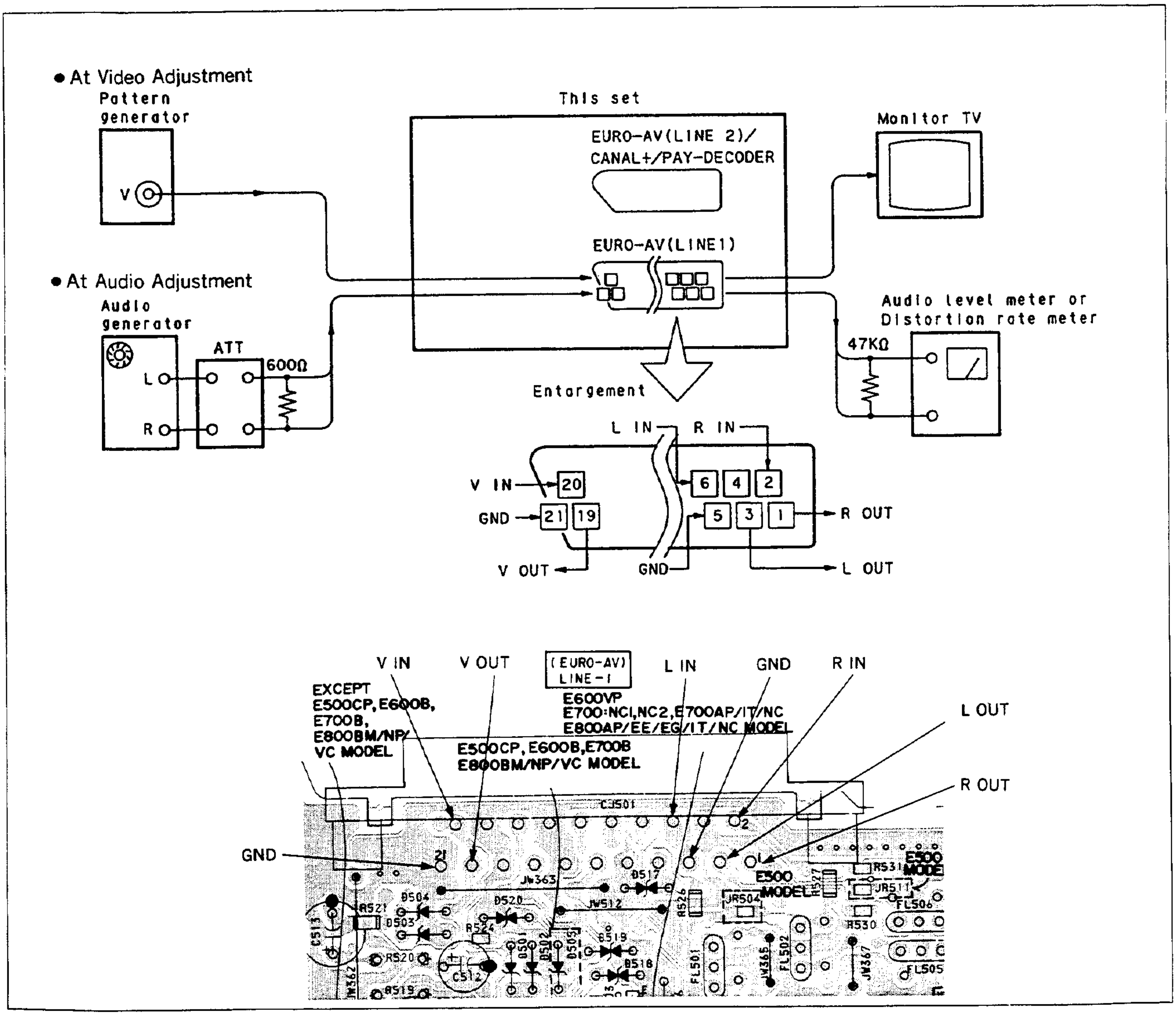

● At Video Adjustment
Pattern generator
V
This set
EURO-AV(LINE 2)/
CANAL+/PAY-DECODER
EURO-AV(LINE1)
Monitor TV
● At Audio Adjustment
Audio generator
ATT
L
R
600Ω
Audio level meter or
Distortion rate meter
47KΩ
Enlargement
L IN
R IN
V IN
20
6
4
2
GND
21
19
5
3
1
R OUT
V OUT
GND
L OUT
V IN
V OUT
(EURO-AV)
LINE-1
L IN
GND
R IN
EXCEPT
E500CP,E600B,
E700B,
E800BM/NP/
VC MODEL
E600VP
E700:NC1,NC2,E700AP/IT/NC
E800AP/EE/EG/IT/NC MODEL
E500CP, E600B,E700B
E800BM/NP/VC MODEL
L OUT
R OUT
GND
CJ501
21
2
1
E500 MODEL
E500 MODEL
JW363
D517
D504
D520
JW512
R526
JR504
R527
R531
JR511
FL506
R521
D503
R524
R530
C513
R520
C512
D501
D502
D505
D519
D518
FL501
FL502
JW365
JW367
FL505
JW362
R519

Fig. 7-2-3.

2-1-3. Check of Input Signal

Because the video signal obtained from the pattern generator is used as the adjustment signal for the adjustment, the video output signal is required to satisfy the specified value.

Connect the oscilloscope to the picture input terminal (terminal board). And check that the synchronizing signal amplitude of the video signal is approximately 0.3V, the amplitude of the picture part is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and is flat, and the ratio of level between the burst signal and the "red" signal is 0.30: 0.66. The video signal (color bar) used for the adjustment is shown in the fig. 7-2-4.

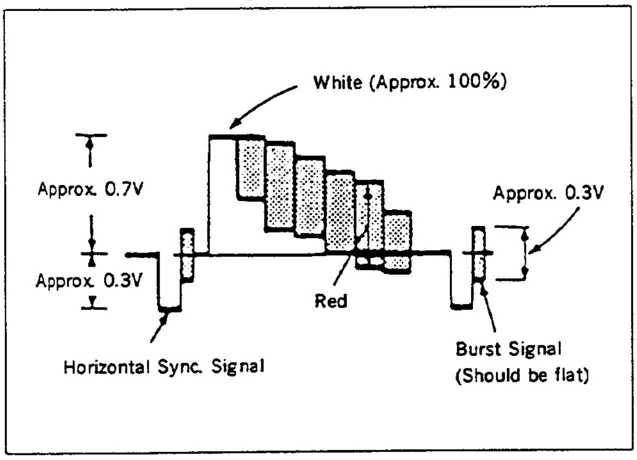


Fig. 7-2-4. Color bar signal of the pattern generator

2-1-4. Alignment Tape

- Contents of MH-2 (Normal-VHS)

	Mode	Period	Video signal	Audio signal
1	SP	10 minutes	Stair step	7kHz
2		5 minutes	——	3kHz
3		10 minutes	Color bar	1kHz
4		3 minutes	RF sweep	——

2-1-5. Specified Input-output Level and the Impedance

EURO-AV (LINE 1)

21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3

EURO-AV (LINE IN 2)

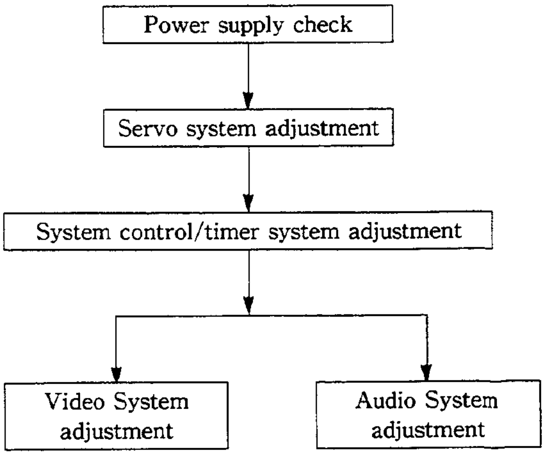
21-pin
Video input: pin 20
Audio input: pins 2 and 6

AUDIO OUT

Phono jack (2)
Rated output level: −7.5dBs
(0 dBs=0.775Vrms)
Load impedance: 47kilohms
Output impedance: less than 10kilohms

2-1-6. Adjustment Procedures

Perform the adjustment following the procedures given below.



2-2. POWER SUPPLY CHECK

2-2-1. Output Voltage Check (PS-328Board)

Mode	E-E
Measuring instrument	Digital voltmeter
38V check	
Measurement point	CN101 Pin ①
Specified value	38±3Vdc
13V check	
Measurement point	CN101 Pin ③④
Specified value	13±1Vdc
MTR12V check	
Measurement point	CN101 Pin ⑤⑥
Specified value	12.1±1.0Vdc
SW12V check	
Measurement point	CN101 Pin ⑩
Specified value	12.0±0.5Vdc
SW5V check	
Measurement point	CN101 Pin ⑫
Specified value	5.0±0.5Vdc
D 6V check	
Measurement point	CN101 Pin ⑭
Specified value	5.9±0.5Vdc
−8V check	
Measurement point	CN101 Pin ⑱
Specified value	−13±2Vdc
D 6V check	
Measurement point	CN102 Pin ②
Specified value	5.9±0.5Vdc
−30V check	
Measurement point	CN102 Pin ⑥
Specified value	−29±3Vdc

[Check Method]

1) Check that each voltage satisfies the specified value.

2-3. SERVO SYSTEM ADJUSTMENT

2-3-1. RF Switching Position Adjustment (MA-215 Board)

[Adjustment Object]

To adjust the link of the Ach and Bch of the tape playback outputs.

To make the unit compatible with other tapes and units. If this specification is not satisfied, the link will appear on the screen and the screen will be disrupted, etc.

Mode	Playback (SP)
Signal	Alignment tape: MH-2 SP color bar portion
Measurement point	CH1: Video Line out terminal CH2: CN802 pin ③ (RF SWP) (RV-37 board)
Measuring instrument	Oscilloscope
Adjustment element	RV202
Specified value	6.5±0.5H (416±32μsec)

[Adjustment Method]

1) Set [TRACKING] switch (Remote comander) to MANUAL. ("Auto tracking" display will disappear on the display window indicator.)
2) Press the tracking buttons [▼] and [▲] and adjust the tracking position to the center.
3) Adjust to 416±32μsec (6.5±0.5H) using RV202.

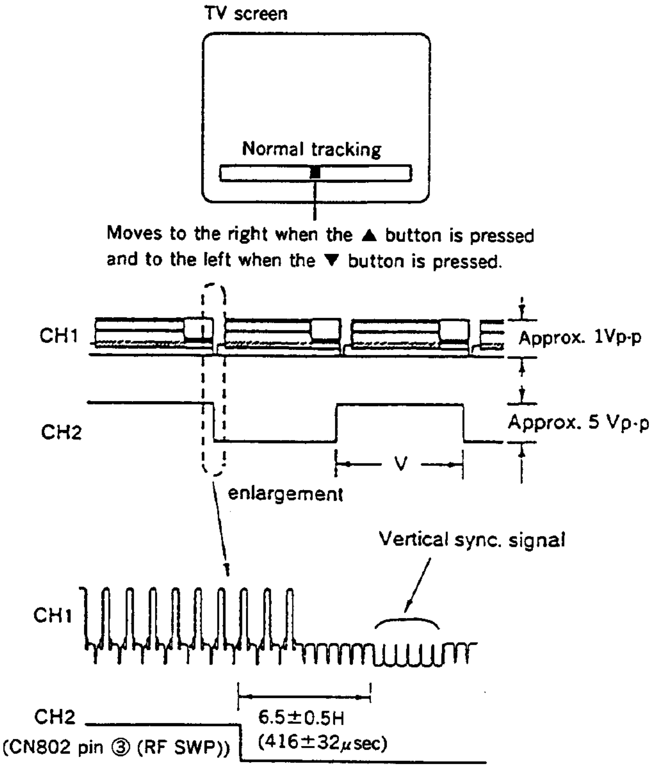

TV screen
Normal tracking
Moves to the right when the ▲ button is pressed and to the left when the ▼ button is pressed.
CH1
Approx. 1Vp-p
CH2
Approx. 5 Vp-p
V
enlargement
Vertical sync. signal
CH1
CH2
(CN802 pin ③ (RF SWP))
6.5±0.5H
(416±32μsec)

Fig. 7-2-5.

2-4. SYSTEM CONTROL/TIMER SYSTEM ADJUSTMENT

2-4-1. Clock Adjustment (HI-6 Board)

[Adjustment Object]

To raise the accuracy of the clock.
If the clock is not accurate, its error difference will gradually increase.

Measurement point	IC302 pin (99) (BUZZER OUT)
Measuring instrument	Frequency counter (Interval counter mode)
Measuring element	CT301
Specified value	0.1249995±0.0000005sec

Note: Do not adjust CT301 except when replacing IC302.

[Adjustment Method]

1) Connect 47kΩ resistor (1-249-437-11) between pin (91) of IC302 and ground. (This sets the adjustments mode.)
2) Connect the frequency counter as shown in the figure below.
3) Adjust the oscillation frequency to the specified value using CT301.
4) After this adjustment, remove the resistor.

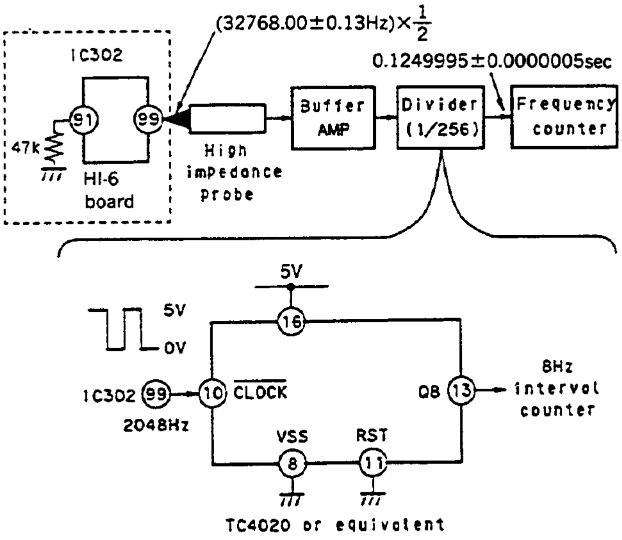

(32768.00±0.13Hz)×1/2
0.1249995±0.0000005sec
IC302
91
99
47k
HI-6 board
High impedance probe
Buffer AMP
Divider (1/256)
Frequency counter
5V
5V
0V
16
IC302 99
2048Hz
10 CLOCK
Q8 13
8Hz interval counter
VSS
RST
8
11
TC4020 or equivalent

Fig. 7-2-6.

2-5. VIDEO SYSTEM ADJUSTMENT

For the video system adjustment, follow the adjustment procedures given below as a rule. The color bar video signal supplied from the pattern generator is used as the video input signal for the video system adjustment of the recording mode. Check that the signal satisfies the specified value designated in the "Check of input signal (Fig. 7-2-4).

[Adjustment Sequence]

1) X'tal OSC Check
2) SYNC AGC Check
3) White clip/Dark clip check
4) Y FM carrier frequency check
5) Playback Y Level check
6) SECAM DET adjustment

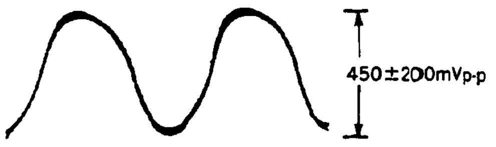
2-5-1. X'tal OSC Check (RV-37 Board)

Mode	Playback
Signal	Alignment tape: Color bar portion
Measurement point	IC001 pin ㉗
Measuring instrument	Oscilloscope and Frequency counter
Specified value	PAL: 4,433619±82Hz

Note: A frequency counter should be connected through a buffer ampifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Check Method]

1) Check that the oscillation frequency satisfies the specified value and that the oscillation voltage is 450±200mVp-p.


450±200mVp-p

4,433619±82Hz (PAL)

Fig. 7-2-7.

2-5-2. SYNC AGC Check (RV-37 board)

Mode	E-E
Signal	Color bar
Measurement point	Video output terminal
Measuring instrument	Oscilloscope
Specified value	A=2.05±0.14Vp-p

[Check Method]

1) Check that the SYNC AGC level (A) satisfies the specified value.

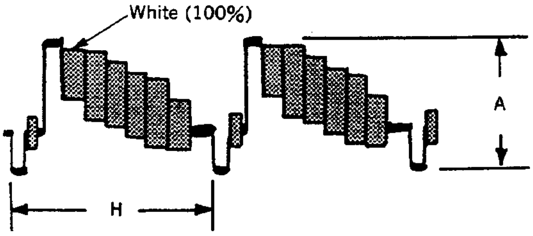


Fig. 7-2-8.

2-5-3. White Clip/Dark Clip Check (RV-37 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC001 pin ⑦
Measuring instrument	Oscilloscope
Specified value	White clip: 190±15% Dark clip: 52±10%

[Check Method]

1) Check that the white clip level is 190±15% to the white (100%) level.
2) Check that the dark chip level is 52±10% to the white (100%) level.

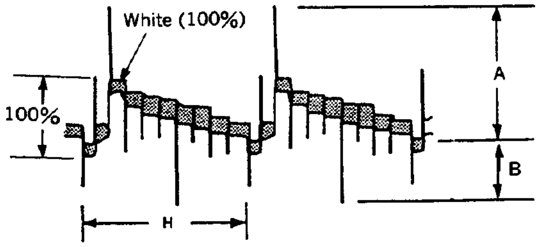


Fig. 7-2-9.

2-5-4. Y FM Carrier Frequency Check (RV-37 Board)

Mode	E-E
Signal	No-signal
Measurement point	Q34 Emitter
Measuring instrument	Frequency counter
Specified value	3.40±0.05MHz

Note: A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Check Method]

1) Check that the carrier frequency satisfies the specified value.

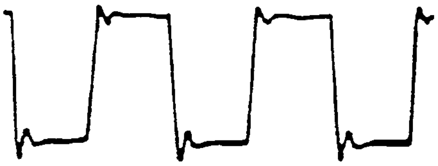


Fig. 7-2-10.

2-5-5. Playback Y Level Check (RV-37 Board)

Mode	Playback
Signal	Alignment tape: SP mode color bar portion
Measurement point	Video utpuc terminal
Measuring instrument	Oscilloscope
Specified value	A=2.05±0.18Vp-p

[Check Method]

1) Check that the playback Y level satisfies the specified value.

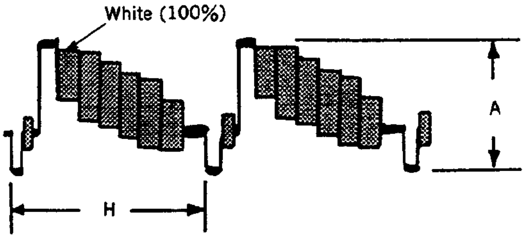


Fig. 7-2-11.

2-5-6. SECAM DET Adjustment (RV-37 Board) (SLV-E600B/E700B/E800B only)

Mode	E-E
Signal	SECAM Color bar
Measurement point	IC201 pin ⑪
Measuring instrument	Oscilloscope
Adjusting element	RV201
Specified value	4.8±0.1Vp-p

[Adjusting Method]

1) Adjust RV201 so that the amplitude of 1/2 fh waveform becames 4.8±0.1Vp-p.

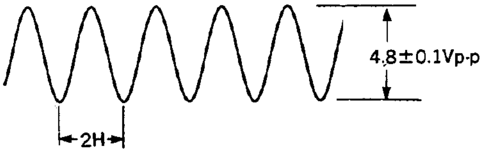


Fig. 7-2-12.

2-6. AUDIO SYSTEM ADJUSTMENT

- For the adjustment of the audio system, perform in the SP mode if there is no special notes. Use the alignment tape.
- Adjust both LCH and RCH.

[Connecting Instruments]

- **Hi-Fi Audio System Adjustment**

Perform the adjustment setting the switches and controls on the following positions if there is no special indications.

PROGRAM switch ....LINE 1

AUDIO MONITOR ....Stereo

[Adjustment Sequence]

1. VCO f_0 adjustment
2. Deviation adjustment
3. Band pass filter f_0 Adjustment
4. AF Switching pulse position adjustment

2-6-1. VCO f_0 Adjustment (HF-34 Board)

[Adjustment Object]

To attain HiFi audio compatibility.

If this specification is not satisfied, the sound will be distorted.

Mode	Recording
Signal	No-signal
Measuring instrument	Frequency counter
1.3MHz adjustment	
Measurement point	IC101 pin ⑲ (Lch RF) (JL111)
Adjustment element	RV103 (Lch)
Specified value	1300±1kHz
1.7MHz adjustment	
Measurement point	IC101 pin ㉚ (Rch RF) (JL110)
Adjustment element	RV102 (Rch)
Specified value	1700±1kHz

Note: Connect the frequency counter through the buffer amplifier (oscilloscope, etc) with high input resistance (1MΩ or more) and low capacity (10pF or less).

[Adjustment Method]

1) Connect the frequency counter with each measurement points.
2) Adjust with RV103 and RV102 so that the frequency satisfies each specified value.

2-6-2. Deviation Check (HF-34 Board)

Mode	Recording
Signal	400Hz, −12dBs: CN102 pin ①, ③
Measurement point	IC101 pin ⑲ (Lch) (JL111) IC101 pin ㉚ (Rch) (JL110)
Measuring instrument	Frequency counter
Specified value	50±5kHz

[Check Method]

1) Check that the frequency satisfies the specified value.

○ HF-34 Board (COMPONENT SIDE)

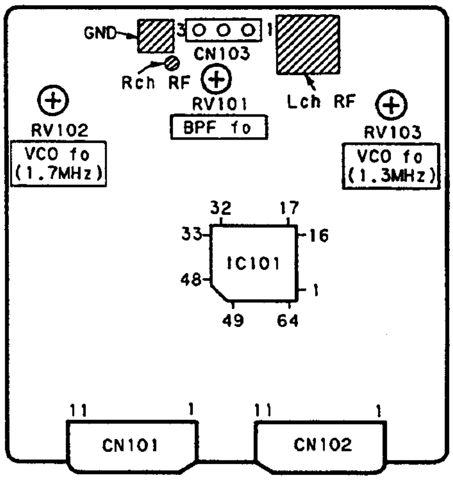


Fig. 7-2-13.

2-6-3. Band Pass Filter f_0 Adjustment (HF-34 board)

[Adjustment Object]

To separate the carrier accurately and ensure that the filter for cutting the video signal functions normally.

If this specification is not satisfied, the sound will be distored.

Mode	Playback
Signal	1.505MHz, 200mVp-p : CN103 pin ①
Measurement point	IC101 pin ⑲ (Lch RF) (JL111) IC101 pin ㉚ (Rch RF) (JL110)
Measuring instrument	Oscilloscope
Adjustment element	RV101
Specified value	Adjust the A and B amplitudes to the same level. (A−B=±2mVp-p)

[Connection]

1) Disconnect CN103 of the HF-34 board and input the 1.505MHz and 200mVp-p sine wave from the signal generator to Pin ① of CN103.

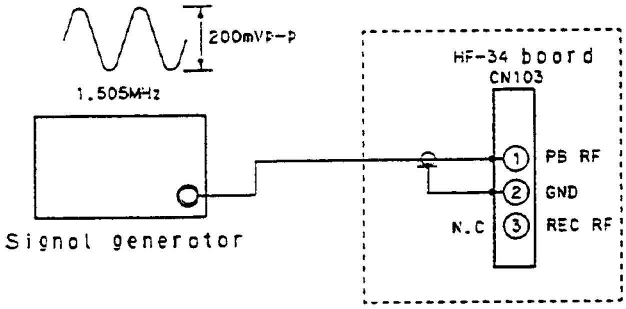

200mVp-p
1.505MHz
Signal generator
HF-34 board
CN103
1
PB RF
2
GND
N.C
3
REC RF

Fig. 7-2-14.

[Adjustment Method]

1) Rotate RV101 fully in the counterclockwise direction (↶) as seen from the component side.
2) Rotate RV101 slowly in the clockwise direction (↷) until the amplitudes of Pin ⑲ of IC101 and Pin ㉚ of IC101 become equal.

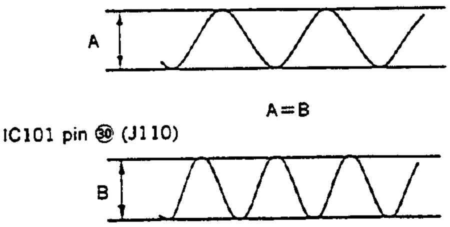

IC101 pin ⑲ (JL111)
A
A=B
IC101 pin ㉚ (J110)
B

Fig. 7-2-15.

2-6-4. AF Switching Position Adjustment (MA-215 Board)

[Adjustment Object]

To adjust the link of the Ach and Bch of the tape playback outputs.

If this specification is not satisfied, the noise will increase and cracking sounds will be produced.

Mode	Playback
Signal	Alignment tape
Measurement point	CH1 : IC101 pin ⑲ (Lch RF) (JL111) CH2 : CN802 pin ③ (RF SWP) (RV-37 board)
Measuring instrument	Oscilloscope
Adjustment element	RV201
Specified value	No dropouts in the RF signal

[Adjustment Method]

1) Set TRACKING switch (Remote comander) to MANUAL. ("Auto tracking" display will disappear on the display window indicator.)
2) Press tracking buttons ▼ and ▲ and adjust the tracking position to the center.
3) Adjust to the minimum specified value using RV201.

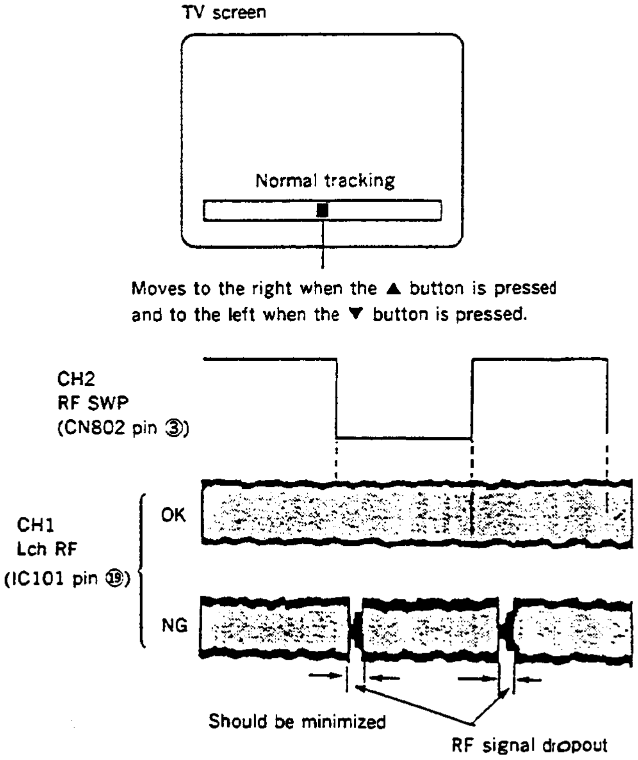

TV screen
Normal tracking
Moves to the right when the ▲ button is pressed and to the left when the ▼ button is pressed.
CH2
RF SWP
(CN802 pin ③)
CH1
Lch RF
(IC101 pin ⑲)
OK
NG
Should be minimized
RF signal dropout

Fig. 7-2-16.

● Normal Audio System Adjustment

- Adjust in the SP mode if there is no special indications.
- Perform the adjustment setting the switch on the following positions.

PROGRAM switch ....LINE 1
AUDIO MONITOR switch................NORMAL*1

* 1 : No indicates on the display window indicator and monitor TV.

[Adjustment Method]

1. ACE head adjustment....Refer to the VHS mechanical part adjustment manual IV
2. Recording bias adjustment
3. E-E output level check

2-6-5. ACE Head Adjustment

Refer to the "VHS Mechanical adjustment manual IV" (9-973-623-11).

2-6-6. Recording Bias Adjustment (MA-215 Board)

Mode	Self-record playback
Signal	400Hz, −27.5dBs ⎫ Audio line in 1 7kHz, −27.5dBs ⎭ (L or R)
Measurement point	Audio line out (L or R)
Measuring instrument	Audio level meter
Adjustment element	RV887
Specified value	0±1dBs

[Adjustment Method]

1) Supply a signal of 400Hz, −27.5dBs to Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate −27.5dBs.
4) Make recording in the SP mode.
5. Set an audio line input signal to 7kHz and make recordng.
6) Playback a recorded portion, and measure output levels at 400Hz and 7kHz.
7) Confirm that the 7kHz playback output levels within a range of the 400Hz playback output level 0±1dB. When it is out of this range, sdjust RV887 and repeat the steps 1) through 7) above.

	Direction of Rotating RV887
400Hz level>7kHz level	Clockwise (↷)
400Hz level<7kHz level	Counterclockwise (↶)

2-6-7. E-E Output Level Check

Mode	E-E
Signal	400Hz, −7.5dBs: Audio Line in 1
Measurement point	Audio line output terminal
Measuring instrument	Audio level meter
Specified value	−7.5±2dBs

[Checking Method]

1) Input signal of 400Hz and −7.5dBs to the L and R channel of the audio input at the same time.
2) Check that the audio output level is −7.5±2dBs.

2-6-8. Overall Output Level and Distortion Factor Check

Mode	Self-record playback
Signal	400Hz, −7.5dBs: Audio Line Input 1 terminals, left and right
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter and Distortion meter
Specified value	Playback Level: −7.5±3dBs Distortion: 4.0% or less

[Check Method]

1) Record signal.
2) Playback the recorded portion.
3) Check that the output level is −7.5±3dBs.
4) Check that the distortion factor is 4.0% or less on the left and right side.

2-6-9. Overall Noise Level Check

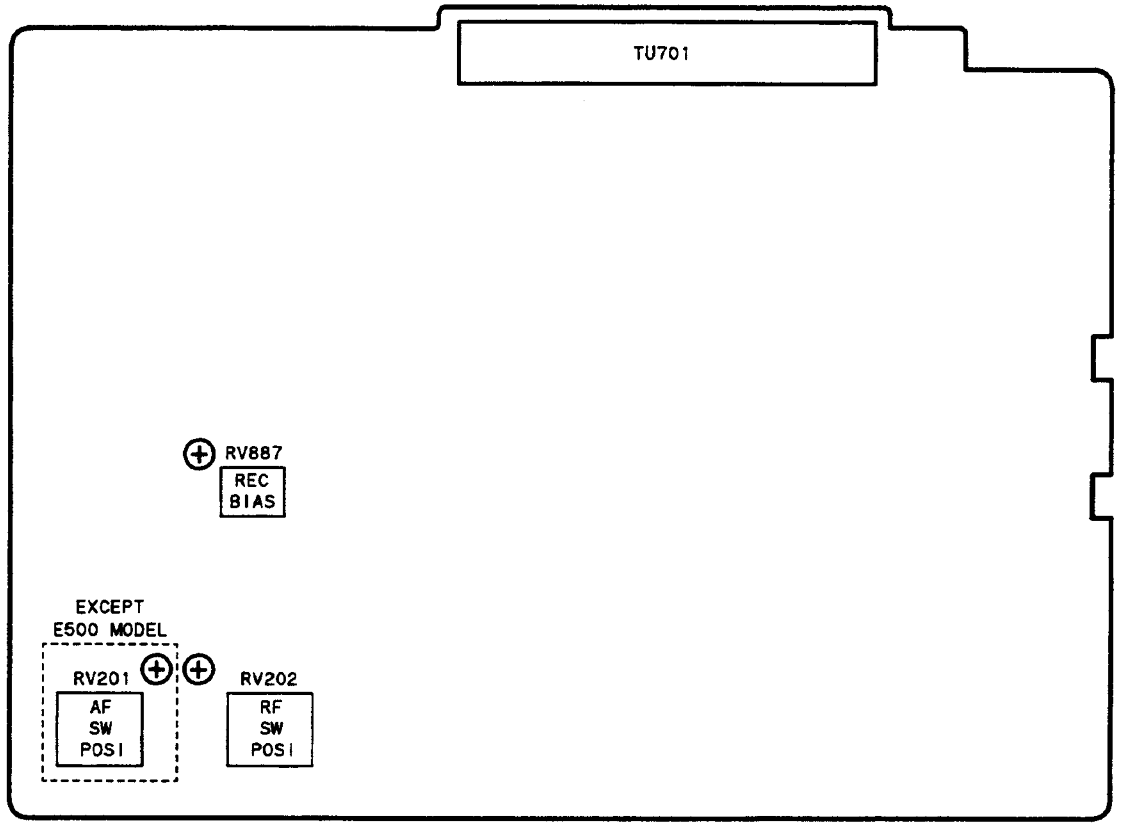
Mode	Self-record playback
Signal	No signal (Insert a shorting plug into the Audio Line Input jacks, left and right.)
Measurement point	Audio Line Output terminals, left and right
Measuring instrument	Audio level meter
Specified value	−46dBs or less

[Checking Method]

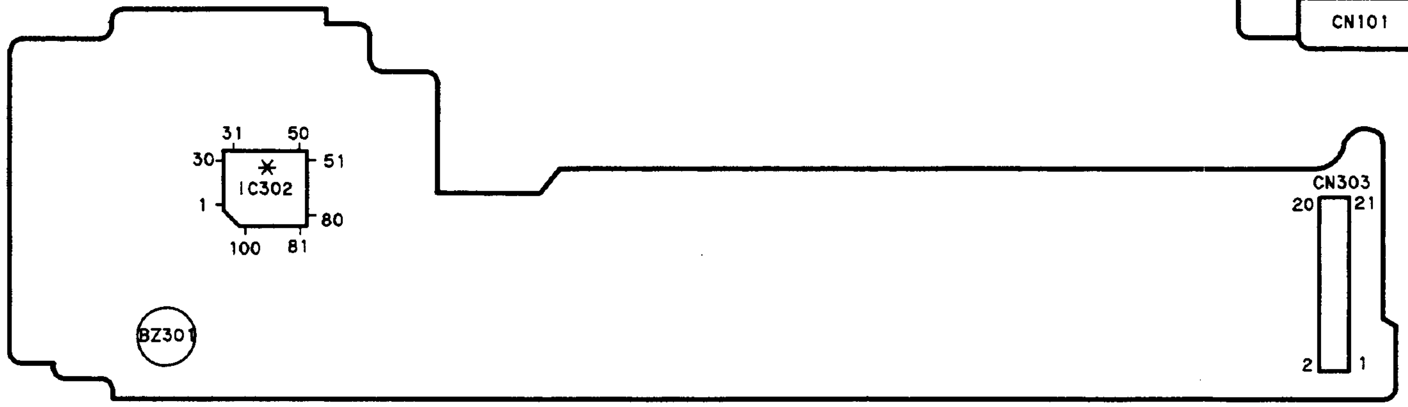
1) Record.
2) Playback recorded portion.
3) Check that noise level is −46dBs or less on the left and right side.

2-7. ADJUSTMENT PARTS LOCATION DIAGRAM

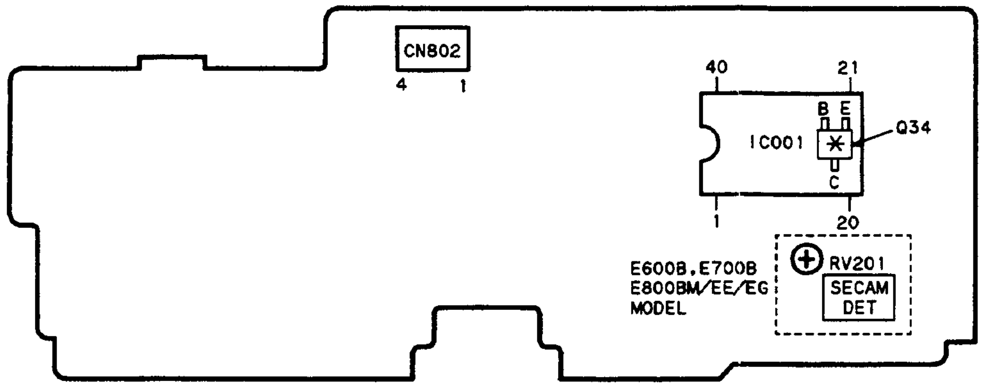
MA-215 BOARD (COMPONENT SIDE)


TU701
RV887
REC BIAS
EXCEPT E500 MODEL
RV201
AF SW POSI
RV202
RF SW POSI

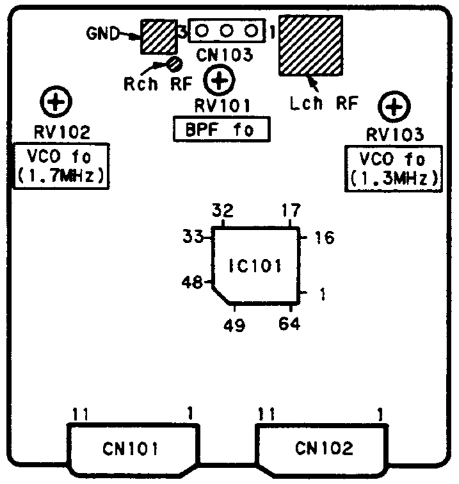
HI-6 BOARD (COMPONENT SIDE)


31
50
30
51
IC302
1
80
100
81
BZ301
CN303
20
21
2
1

RV-37 BOARD (COMPONENT SIDE)


CN802
4
1
40
21
B
E
IC001
Q34
C
1
20
E600B, E700B
E800BM/EE/EG
MODEL
RV201
SECAM DET

HF-34 BOARD
(COMPONENT SIDE)


GND
3
1
CN103
Rch RF
RV101
BPF fo
Lch RF
RV102
VCO fo (1.7MHz)
RV103
VCO fo (1.3MHz)
32
17
33
16
IC101
48
1
49
64
11
1
CN101
11
1
CN102

*Part on the conductor side.

SLV-E500AP/E500CP/E500IT/E500UX/E500VP/E600B/E600VP/E700/E700AP/E700B
/E700EX/E700IT/E700UX/E700VP/E800AP/E800BM/E800EE/E800EG/E800IT
/E800NC/E800NP/E800VC
RMT-V159/V159A/V159B/V159D/V159E/V159H/V159J/V159K/V163/V163A

SONY®

SERVICE MANUAL

UK Model
SLV-E500UX/E700UX
Italian Model
SLV-E500IT/E700IT/E800IT
Netherlands Model
SLV-E500AP/E700AP/E800AP
Germany Model
SLV-E500VP/E600VP/E700VP/E800VC
Spanish Model
SLV-E500CP/E800NP
Ireland Model
SLV-E700EX
East European Model
SLV-E800EE/E800EG
French Model
SLV-E600B/E700B/E800BM
North European Model
SLV-E700/E800NC

SUPPLEMENT-1

File this supplement with the service manual.
(96-001)

Subject: Input data of EEP ROM addition

- When replacing EEP ROM (IC301) on HI-6 board, it is necessary to set the data on page D as follows;

D PAGE MEMORY MAP

Address	E500AP	E500CP	E500IT	E500UX	E500VP	E600B	E600VP	E700(NC1)	E700(NC2)	E700AP	E700B	E700EX
02	07	0B	0A	00	05	26	25	29	29	27	26	28
03	4B	4B	4B	4B	4B	59	59	59	59	59	59	59
04	00	00	00	01	00	02	00	00	00	00	02	01
05	23	23	23	23	23	13	13	13	13	13	13	23
06	30	14	00	30	28	05	2A	33	13	32	05	31
07	00	00	00	00	00	00	00	00	00	00	00	00
08	40	40	40	40	40	49	41	41	41	41	49	41
09	07	07	07	07	07	07	07	07	07	07	07	07
0A	00	00	00	00	00	00	00	00	00	00	00	00
0B	00	00	00	00	00	00	00	00	00	00	00	00
0C	00	00	00	00	00	00	00	00	00	00	00	00

Address	E700IT	E700UX	E700VP	E800AP	E800BM	E800EE	E800EG	E800IT	E800NC	E800NP	E800VC
02	2A	20	25	47	46	4D	4C	4A	49	4B	44
03	59	59	59	5B	5B	5B	5B	5B	5B	5B	5B
04	00	01	00	00	02	01	01	00	00	00	00
05	13	23	13	23	23	23	23	23	23	23	23
06	02	31	2A	32	05	0A	0A	02	33	17	2E
07	00	00	00	00	00	00	00	00	00	00	00
08	41	41	41	41	59	53	53	41	41	41	41
09	07	07	07	07	07	07	07	07	07	07	07
0A	00	00	00	00	00	00	00	00	00	00	00
0B	00	00	00	00	00	00	00	00	00	00	00
0C	00	00	00	00	00	00	00	00	00	00	00

- See next page about the input method of data.

Sony Corporation
Consumer A & V Products Company
Home A & V Products Div.

9-973-691-81

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96A0465-1
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Published by Personal A & V Products Div.
Quality Engineering Dept.

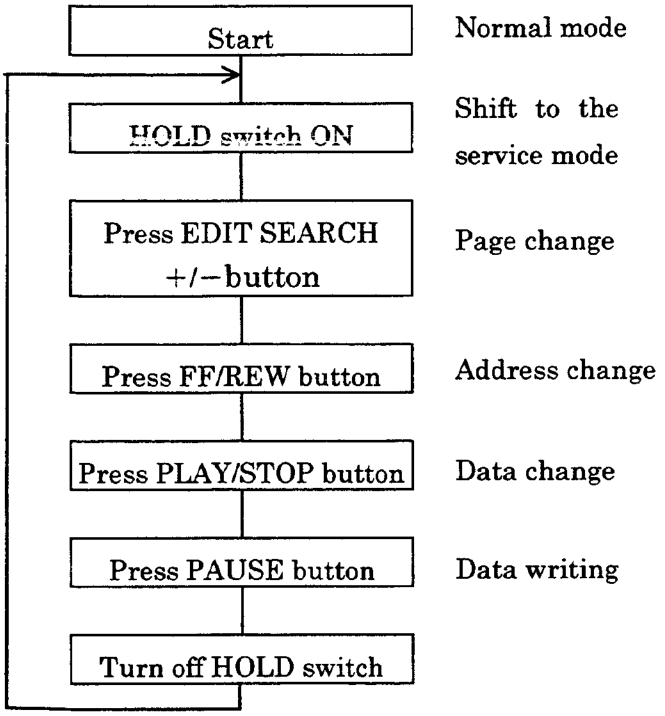
<SERVICE MODE>

1.SETTING THE SERVICE MODE

The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.

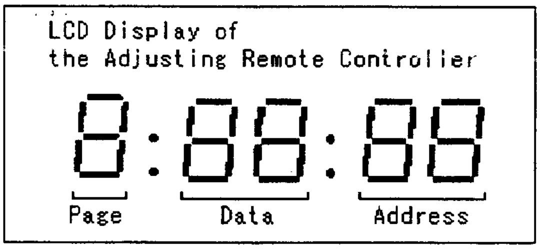
The unit can be set into the mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to 'HOLD').

(1)Shifting to the service mode using the adjusting remote commander.

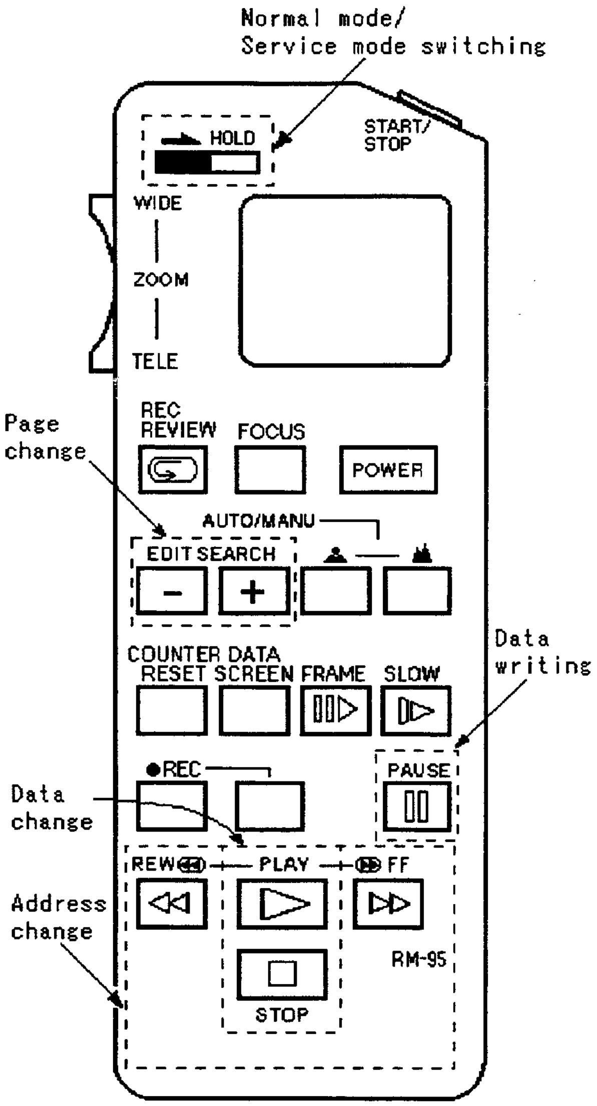


Start
Normal mode
HOLD switch ON
Shift to the service mode
Press EDIT SEARCH +/−button
Page change
Press FF/REW button
Address change
Press PLAY/STOP button
Data change
Press PAUSE button
Data writing
Turn off HOLD switch

Adjusting remote commander RM-95 (J-6082-053-B)



LCD Display of
the Adjusting Remote Controller
8:88:88
Page
Data
Address



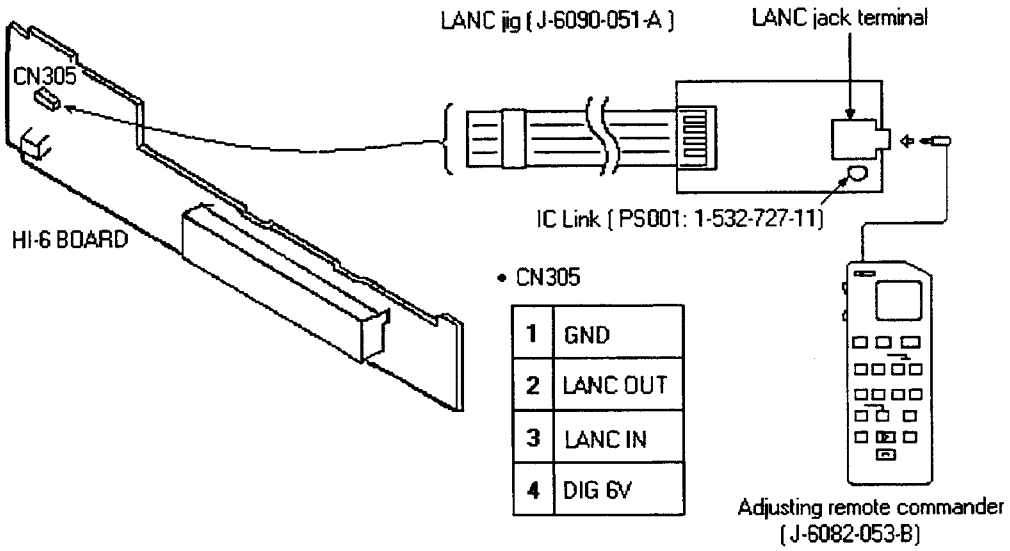
Normal mode/
Service mode switching
HOLD
START/
STOP
WIDE
ZOOM
TELE
Page
change
REC
REVIEW
FOCUS
POWER
AUTO/MANU
EDIT SEARCH
−
+
COUNTER DATA
RESET SCREEN FRAME SLOW
Data
writing
●REC
PAUSE
Data
change
REW
PLAY
FF
Address
change
STOP
RM-95

Command mode	Command function	Normal LANC Command
Page up	Page +1	Edit Search +
Page down	Page −1	Edit Search −
Direct Page Set	Sets to the specified page	Event clear
Address Up	Address +1	Fast Forword
Address Down	Address −1	Rewind
Data Up	Data +1	Play Back
Data Down	Data −1	Stop
Store	Writes data in the EEPROM	Pause

(2)Adjusting remote commander connecting procedure.

SLV-E500/E600/E700/E800 series does not have the LANC jack for LANC adjusting remote commander. When adjusting, connect the LANC jig (J-6090-051-A) to CN305 on HI-6 board.

> Note: When connecting or disconnecting LANC jig to CN305 on HI-6 board, first connect the adjusting remote commander to the jack on LANC jig before connecting LANC jig to CN305.
>
> Connection or disconnection of the adjusting remote commander in the condition LANC jig is connected to CN305 causes IC link to damage itself.


LANC jig [J-6090-051-A]
LANC jack terminal
CN305
HI-6 BOARD
IC Link [PS001: 1-532-727-11]
Adjusting remote commander
[J-6082-053-B]

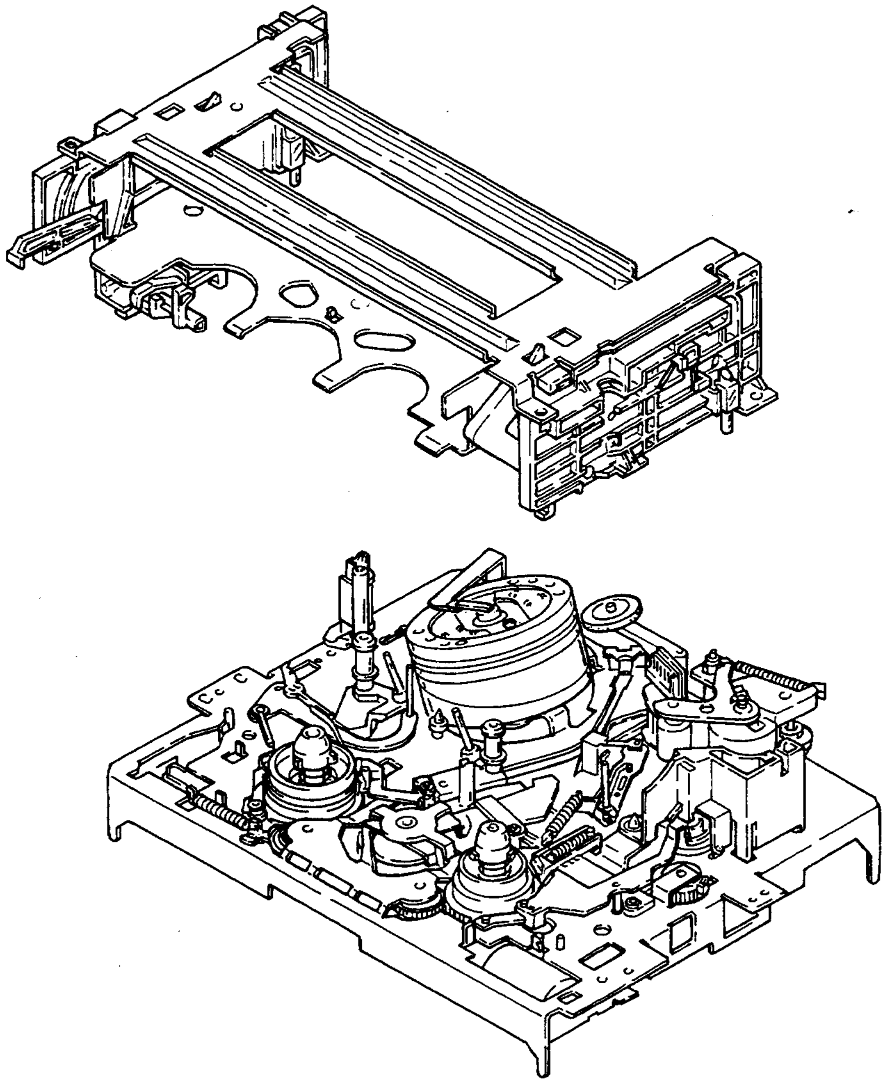
• CN305

1	GND
2	LANC OUT
3	LANC IN
4	DIG 6V

VHS MECHANICAL ADJUSTMENT MANUAL IV

H MECHANISM

Please use with the service manual.



VHS VIDEO CASSETTE RECORDER

MICROFILM

SONY®

TABLE OF CONTENTS

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1. PREPARATION FOR MECHANISM CHECK ADJUSTMENT AND REPLACEMENT

Refer to the service manual, "DISASSEMBLY" for removal of the cabinet and boards.

1-1. LOADING AND THREADING PROCEDURE WHEN THE POWER TURNS OFF (Fig. 1-1)

1-1-1. LOADING AND THREADING PROCEDURE WITH HANDS

1) Turn cam motor in the arrow Ⓐ direction until loading and threading are end.

1-1-2. LOADING AND THREADING PROCEDURE WITH REGULATED DC POWER SUPPLY

1) Applying approx. +9 V (300 mA) to cam motor with regulated DC power supply makes it loading and threading.

Note: When loading and threading without cassette, claws are caught in four positions as following figure (in the order ① → ② → ③ → ④).
So release them with hands.

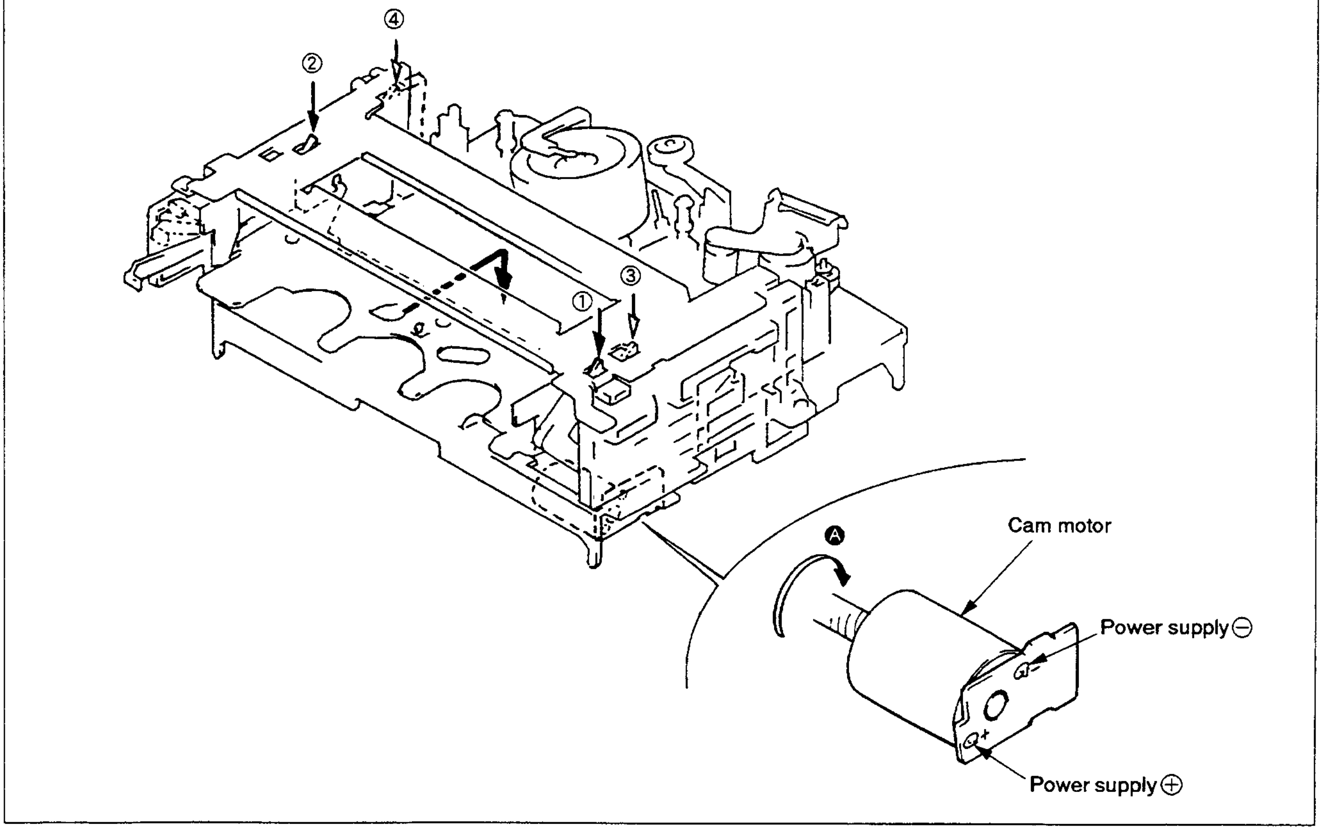


Fig. 1-1

1-2. UNLOADING AND UNTHREADING PROCEDURE WHEN THE POWER TURNS OFF (Figs. 1-2 and 1-3)

1-2-1. UNLOADING AND UNTHREADING PROCEDURE WITH HANDS

1) Turn cam motor in the arrow Ⓑ direction until unthreading is end.
2) Turn capstan motor in the arrow Ⓒ direction to take up tape in cassette.
3) Turn cam motor in the arrow Ⓑ direction until unloading is end.

1-2-2. UNLOADING AND UNTHREADING PROCEDURE WITH REGULATED DC POWER SUPPLY

1) Apply approx. +9 V (300 mA) to contrary polarities of cam motor.
2) Unthreading operation begins, tape guides return to their original positions (Unthreading operation is end but tape remains), then stop cam motor by turning power off.

Note: When unloading begins and cassette lid is closed, turn cam motor in the arrow Ⓐ direction to open tape guard.

3) Turn capstan motor in the arrow Ⓒ direction to take up tape in cassette.

Note: That tape is not caught at pinch roller. (Fig. 1-3)

4) Check that tape is not loosened completely, and apply approx. +9 V (300 mA) to contrary polarities of cam motor with regulated DC power supply. (Fig. 1-2)

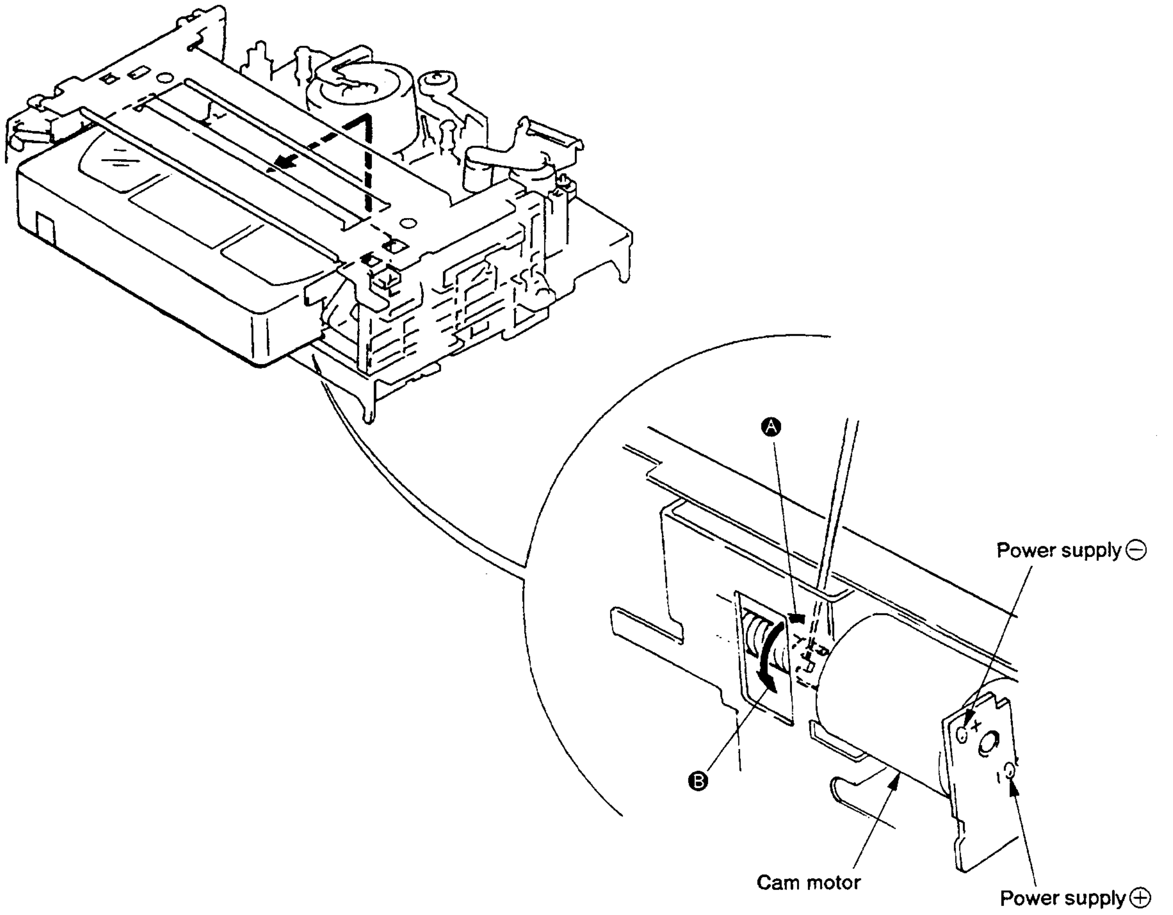


Fig. 1-2

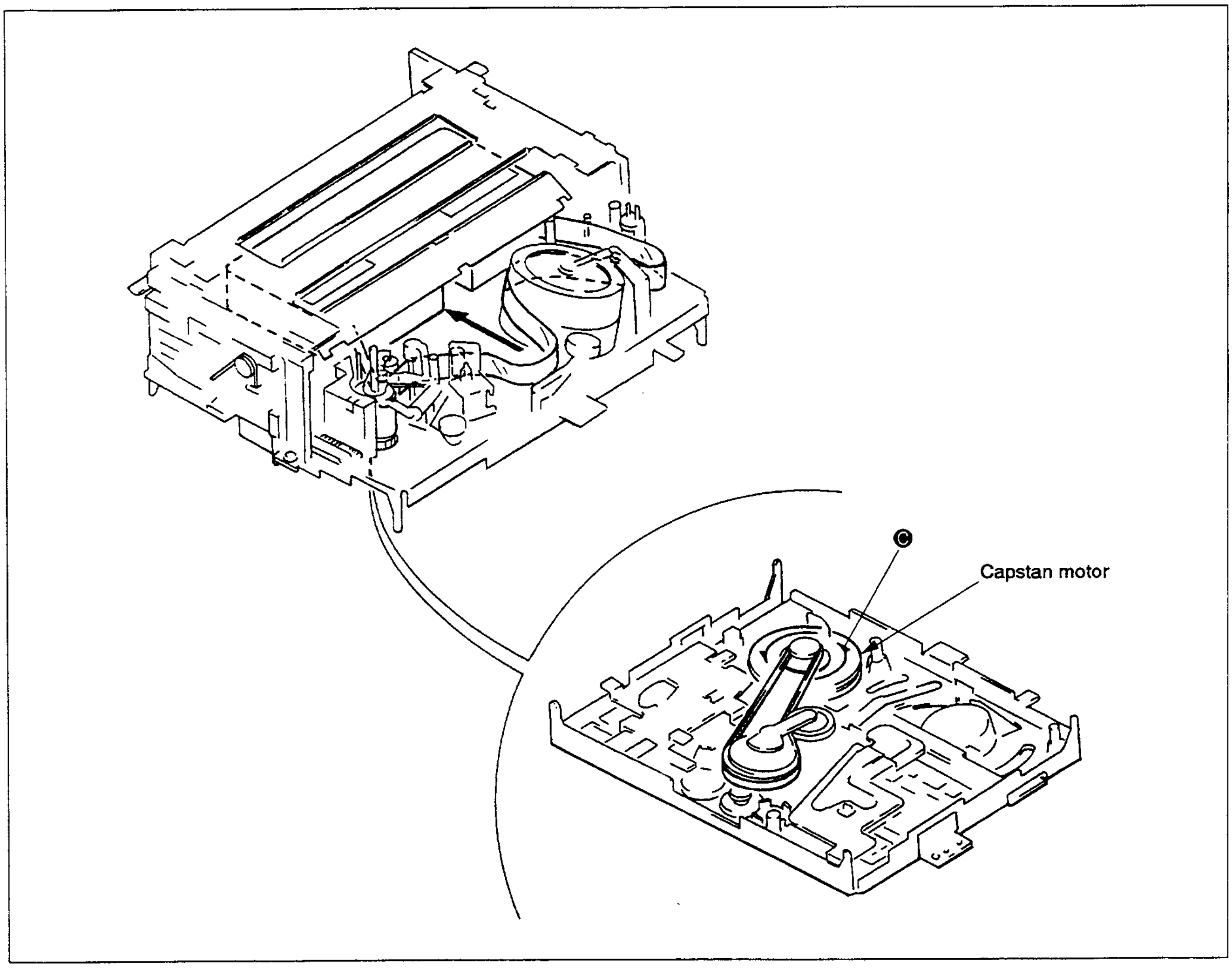

©
Capstan motor

Fig. 1-3

1-3. HOW TO COMPLETE THREADING WITHOUT CASSETTE COMPARTMENT (Fig. 1-4)

Note 1: Put the FL block assembly removed the FL top plate on the bottom not to put dust or grease the top sensor and the end sensor luminous plates or not to scratch them. (Fig. A)

1) Pull out AC plug from wall outlet.
2) Shade near the end and top sensors with a black masking tape on the like.
3) Press cassette in/rec proof switch with a tip of screwdriver or the like.
4) Connect AC plug to wall outlet.
5) Release cassette in/rec proof switch by putting off a tip of screwdriver or the like.
   (At this time, power turns on, rewind operates for 10 seconds, after that power turns off.)

Note 2: In this condition, each mode can be set to video cassette recorder. (including recording mode)
However, fast forward should be done after rewinding for 15 seconds or more.

Note 3: After above mentioned operation, be sure to return the mode in the following order.

1) Remove the tape near the end and top sensors.
2) Pull out AC plug from wall outlet to reset the system control microcomputer.

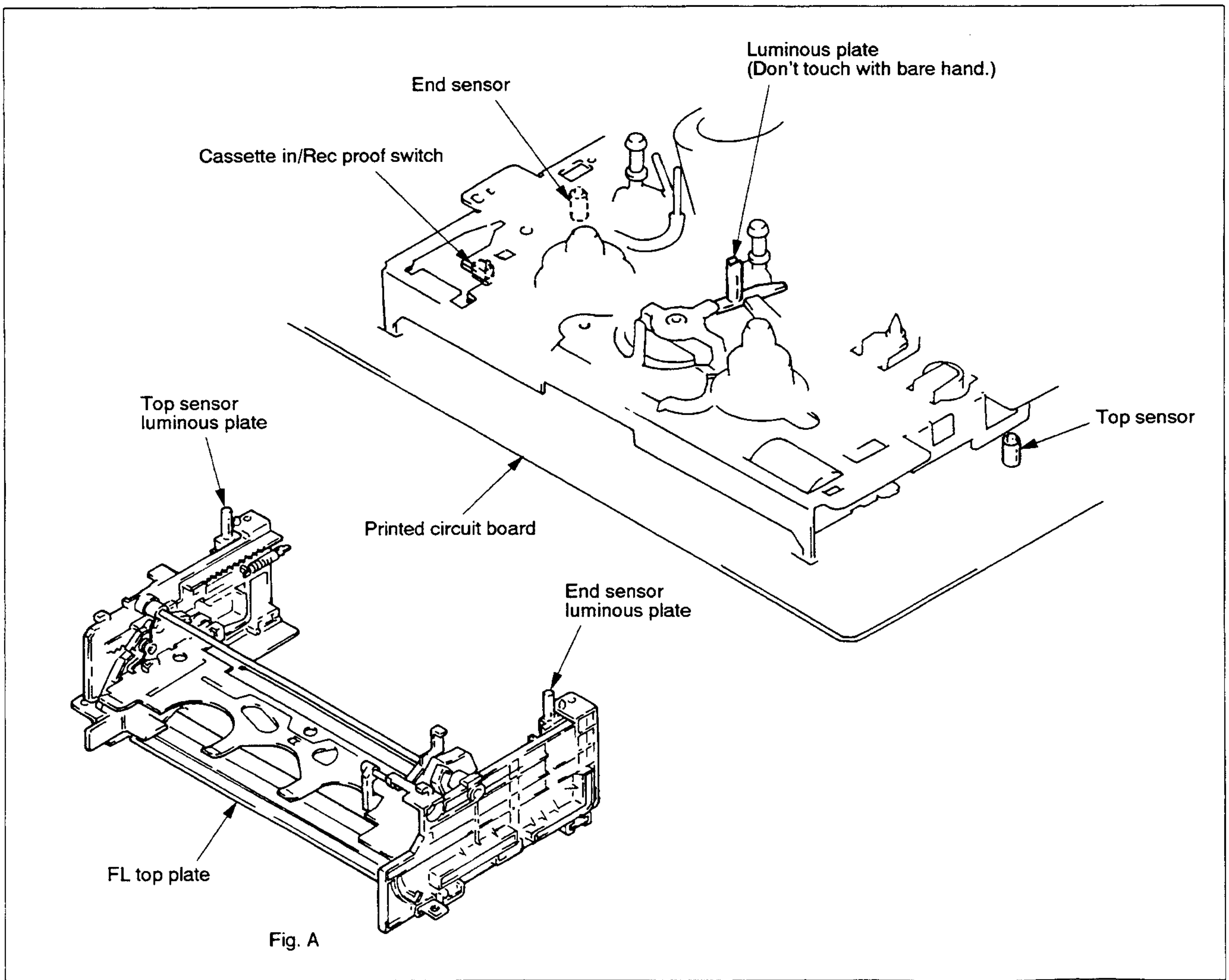

Luminous plate
(Don't touch with bare hand.)
End sensor
Cassette in/Rec proof switch
Top sensor
Top sensor luminous plate
Printed circuit board
End sensor luminous plate
FL top plate
Fig. A

Fig. 1-4

2. PERIODIC CHECK AND REPLACEMENT

In order to obtain the best performance from this unit and make full use of its capabilities, and to extend the life of the unit and tapes, it is recommended that the following periodic checks and maintenance be performed.

* The following must be done after every repair regardless of how many hours the user has operated the machine.

2-1. CLEANING OF ROTATING HEAD DISK ASSEMBLY

1) Press a chamois cloth (Jig Ref. No. J-9) which has been dipped in cleaning fluid (Jig Ref. No. J-8) lightly against the rotating drum assembly, then do the cleaning by slowly rotating the rotating head disk by hand. (Never try to clean by using the motor to turn it.)
2) Never try to clean by moving the chamois cloth at a vertical angle to the head tip. There is a very great danger of damaging the head tip if this is done.

2-2. CLEANING OF THE TAPE MOVEMENT SYSTEM

1) Clean the surfaces which the tape contacts during its movement (tape guide, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth that has been dipped in cleaning fluid.

2-3. CLEANING THE DRIVE SYSTEM

1) Clean the driving parts with a cloth that been dipped in cleaning fluid.

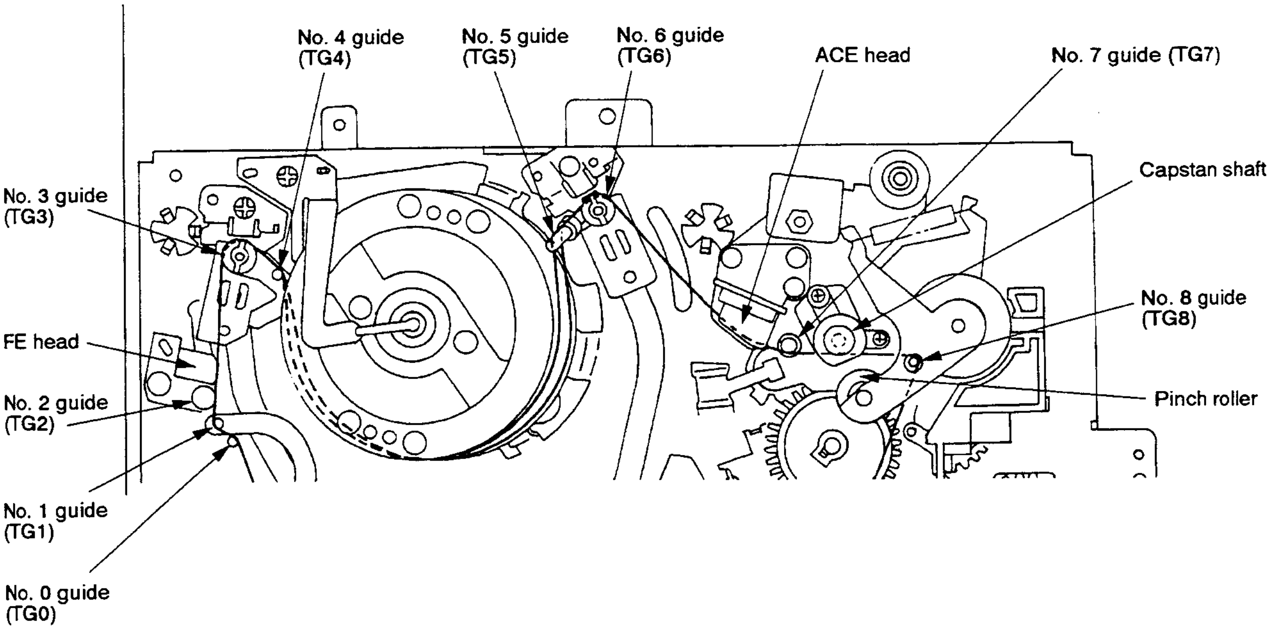

No. 4 guide (TG4)
No. 5 guide (TG5)
No. 6 guide (TG6)
ACE head
No. 7 guide (TG7)
Capstan shaft
No. 3 guide (TG3)
No. 8 guide (TG8)
FE head
Pinch roller
No. 2 guide (TG2)
No. 1 guide (TG1)
No. 0 guide (TG0)

Fig. 2-1 Parts requiring cleaning

2-4. PERIODIC CHECK ITEMS

Perform the maintenance and check listed on the table below, according to users operating hours.

Operating Hours (H) Maintenance & Check		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
Tape Transportation System	Cleaning of tape transportation system	○	○	○	○	○	○	○	○	○	○	This cleaning must be done whenever a repair is made.
	Cleaning and degaussing of ACE assembly	○	○	○	○	○	○	○	○	○	○	
	Cleaning & degaussing of upper drum assembly	○	○	○	○	○	○	○	○	○	○	The life of the head varies, depending on operational conditions and method.
Performance Confirmation	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the section which causes abnormal sound.
	Measurement of FWD back tension	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to 4-1-1. Specified value: adjust to 36 to 44 g•cm (when measured with torque cassette tape)
	Confirmation of brake system	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to section.
	Confirmation of record & playback functions	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform the confirmation whenever repair is made.
	Measurement of forward torque	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust to 70 to 120 g•cm

○ Cleaning ☆ Confirmation

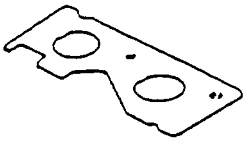
Note: On overhaul

When overhauling the unit, replace parts as indicated in the above table.

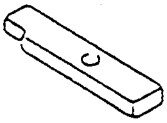
2-5. TOOLS AND FIXTURES REQUIRED FOR SERVICING

Ref No.	Name	Part No.	Carved Jig No.	Remarks
J-1	Master Plane	H-7099-279-H		Applicable to S-VHS
J-2	Reel Disk Height Jig	H-7099-038-H		
J-3	Torque Gauge Adaptor	H-7099-035-H		
J-4	0.93 mm Torque Gauge	H-7099-039-H		
J-5	Hex. Wrench	H-7099-202-H		
J-6	Torque Measurement Cassette VHT-063S	J-6082-011-A		For FWD & back tension torque measurement.
	Torque Measurement Cassette VHT-404S	J-6082-012-A		For CUE and review torque measurement.
J-7	Alignment Tape JVC-MH-1 (NTSC) 24HASF-2 (NTSC Hi-Fi) JVC-MH-2 (PAL) JVC-MH-4 (SECAM)	 H-7099-046-H H-7099-153-H H-7099-052-H H-7099-053-H		
J-8	Cleaning Fluid	Y-2031-001-0	————	
J-9	Chamois Leather	2-034-697-00	————	
J-10	Head Demagnetizer	Widely available	————	Demagnetize video heads and audio heads.
J-11	Dental Mirror (With handle) Dental Mirror (Mirror)	J-6080-029-A J-6080-030-1	SL-5052	Tape path and tape traveling adjustments or checks.
J-12	FLOIL SG-055G	7-651-000-09		
J-13	Diamond Oil NT-68	7-661-018-18		
J-14	Screw Lock G (1401B)	7-432-114-11		

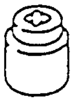
J-1



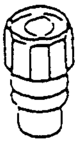
J-2



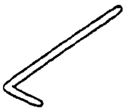
J-3



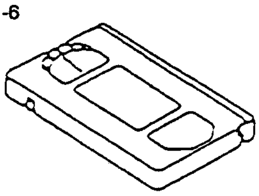
J-4



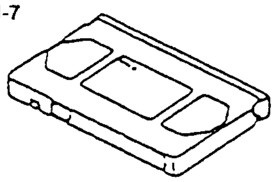
J-5



J-6

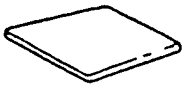


J-7

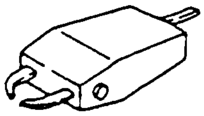


J-8

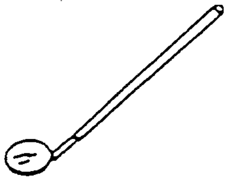
J-9



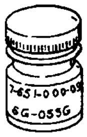
J-10



J-11

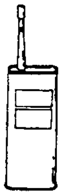


J-12



J-13

J-14



3. MAINLY MECHANICAL PARTS REPLACEMENT

Notes:

- Refer to the service manual, "DISASSEMBLY" for removal of the cabinet and boards.
- On mounting, while referring to notes on mounting perform reversely in the removal order.
- When replacing greased parts, grease them in the same way.
- Do not oil, grease or touch with bare hands the surfaces contacts tape of guides and brake shoes.
- Install gears to engage each other.
- Basically, disassembling and assembling should be done in the unthreading-end condition.

3-1. FL BLOCK ASSEMBLY (Fig. 3-1)

1) Remove screws ①.
2) Remove FL block assembly ② in the arrow Ⓐ direction.

Note: Be careful not to damage claws on the bottom and front.

[Note on Mounting]

- First insert claws on the bottom and front not to damage.
- Engage FL slide plate to FL driving gear with slightly sliding FL slide plate. (Fig. A)
- Keep clean top sensor and end sensor luminous plates. (Refer to 1-3.)

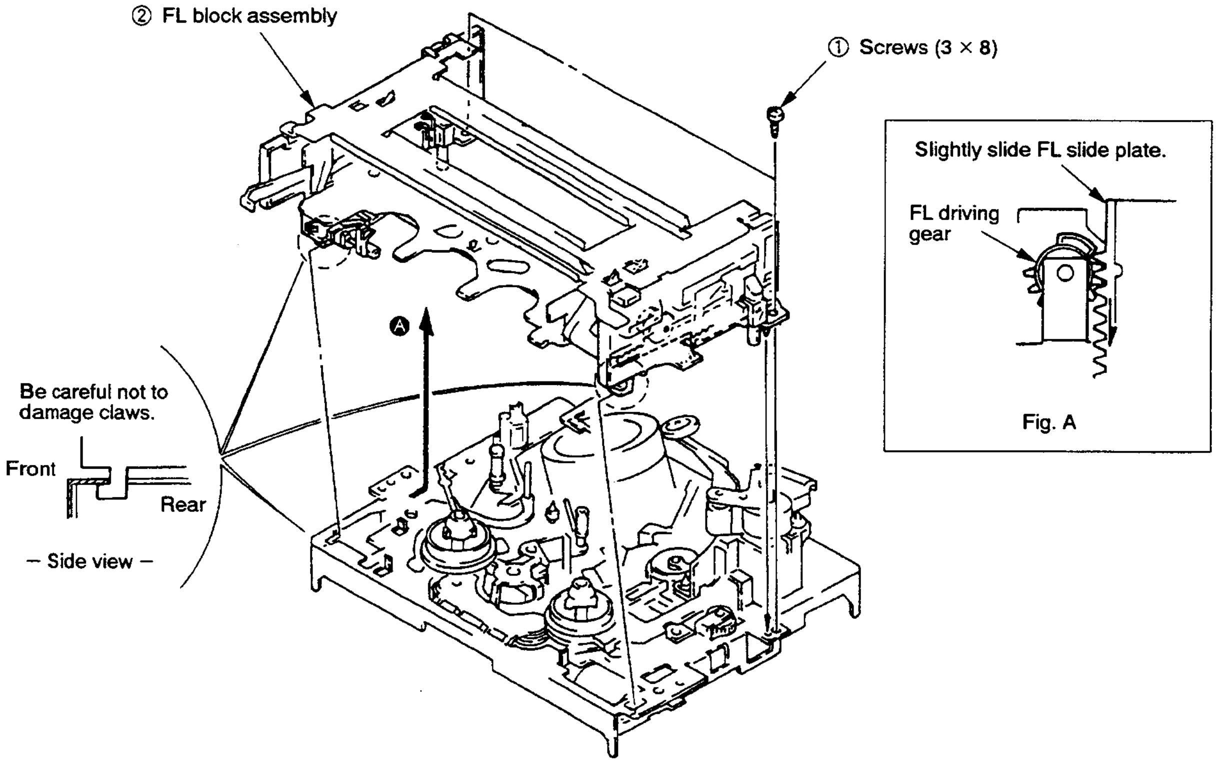

② FL block assembly
① Screws (3 × 8)
Ⓐ
Be careful not to damage claws.
Front
Rear
– Side view –
Slightly slide FL slide plate.
FL driving gear
Fig. A

Fig. 3-1

3-2. DRUM ASSEMBLY (Fig. 3-2)

1) Remove screw ①.
2) Remove ground shaft assembly ② not to touch its tip with bare hand or tools.
3) Remove screws ③ to remove drum assembly ④.

[Note on Mounting]

- Don't touch head chips ⑤ and ground shaft assembly ④ with bare hand or tools.
- Keep clean the surface contacts tape of drum assembly ④.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

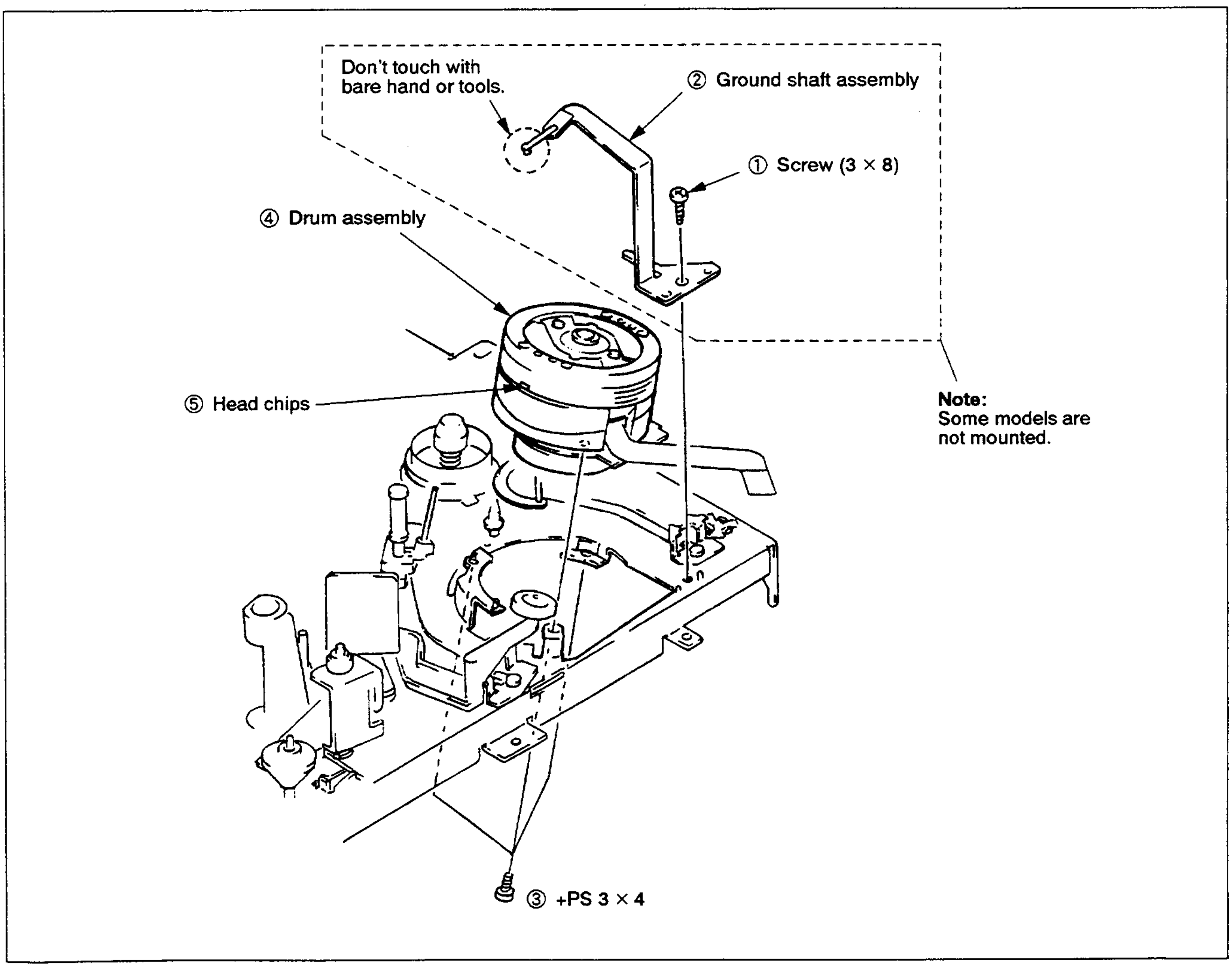

Don't touch with bare hand or tools.
② Ground shaft assembly
① Screw (3 × 8)
④ Drum assembly
⑤ Head chips
Note: Some models are not mounted.
③ +PS 3 × 4

Fig. 3-2

3-3. TIMING BELT (Fig. 3-3)

1) Remove screw ① to remove tension vehicle arm assembly ②.
2) Remove timing belt ③.

[Note on Mounting]

- Tighten screw ① while pressing tension vehicle arm in the arrow Ⓐ direction.

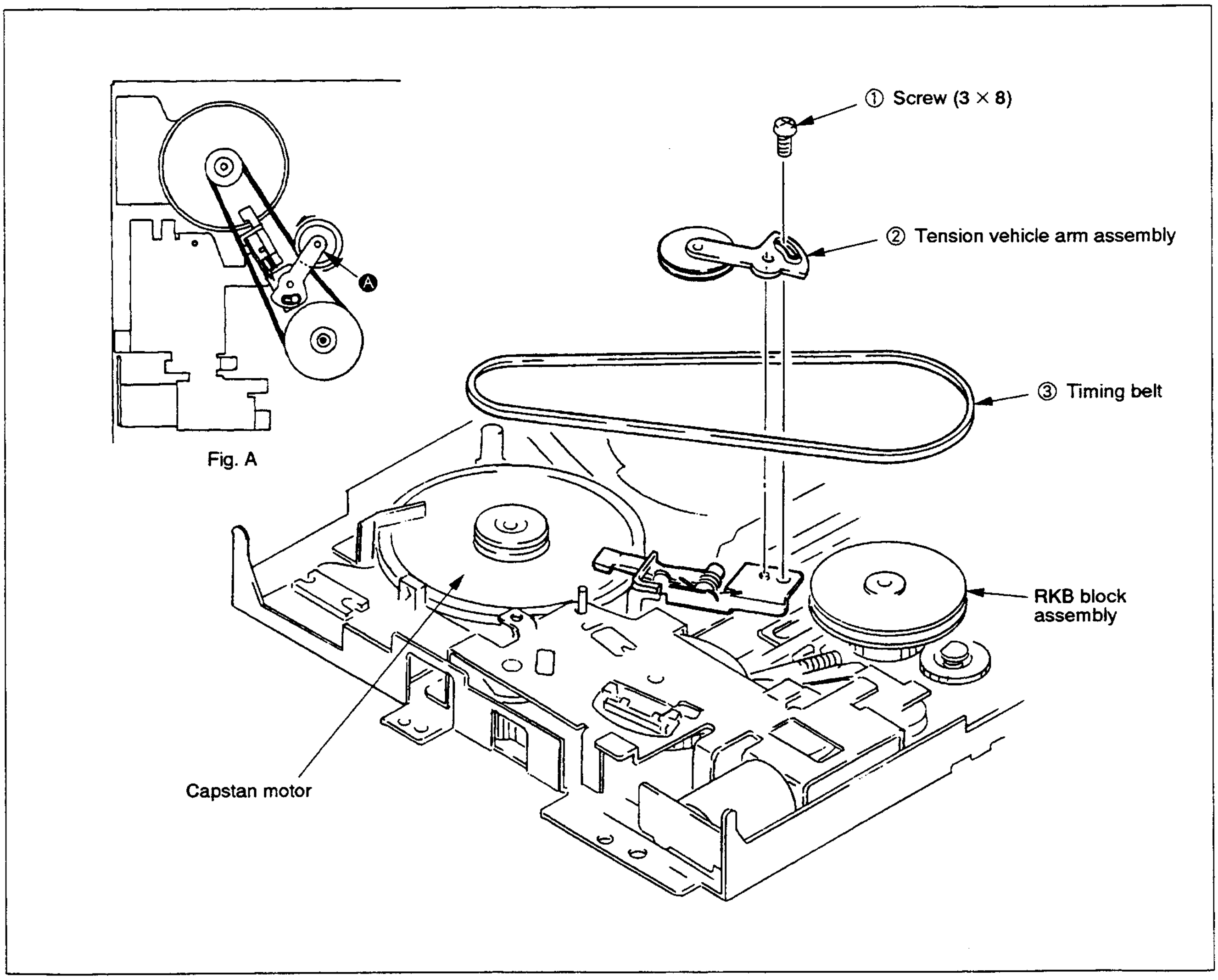

① Screw (3 × 8)
② Tension vehicle arm assembly
③ Timing belt
RKB block assembly
Capstan motor
Ⓐ
Fig. A

Fig. 3-3

3-4. CAP BRAKE ASSEMBLY (Fig. 3-4)

1) Remove tension vehicle arm assembly. (Refer to 3-3)
2) Remove torsion coil spring ① from portion Ⓐ to remove CAP brake assembly.

[Note on Mounting]

- Mount torsion coil spring ① to CAP brake assembly ② in the order Ⓐ and Ⓑ. (Fig. A)
- Put the fulcrum of CAP brake assembly ② to CAP brake shaft ③ and the tip of torsion coil spring to Ⓒ.
- Don't touch brake shoe Ⓓ with bare hand.

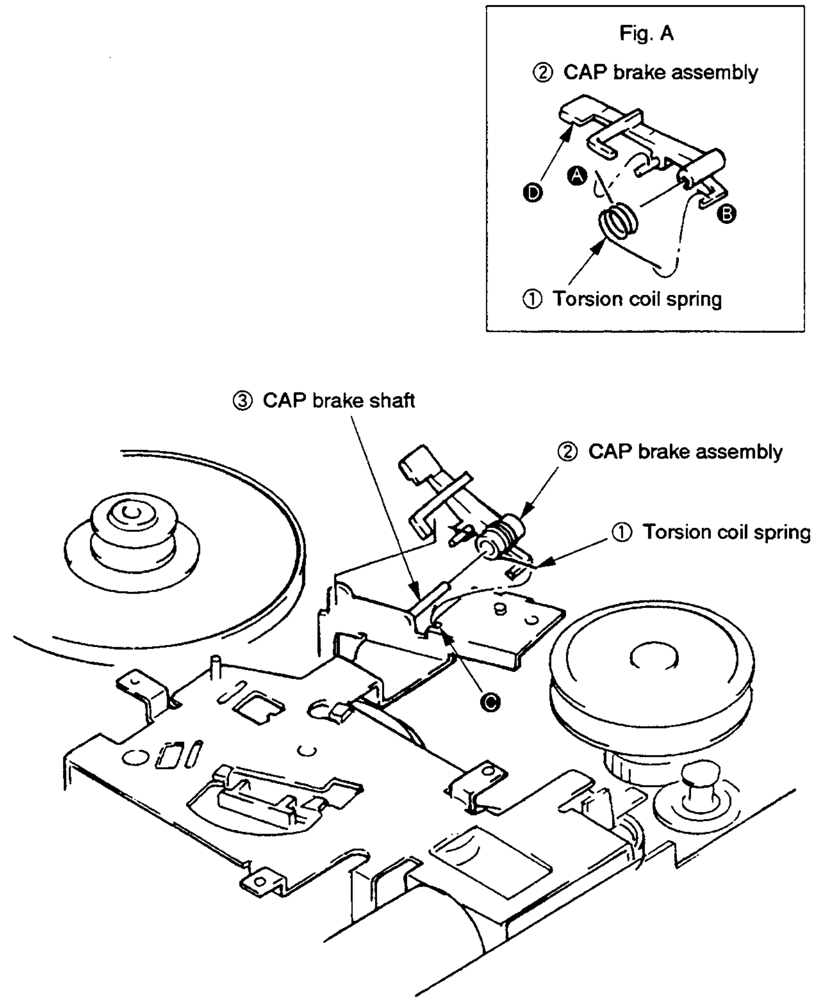


Fig. A
② CAP brake assembly
Ⓓ
Ⓐ
Ⓑ
① Torsion coil spring
③ CAP brake shaft
② CAP brake assembly
① Torsion coil spring
Ⓒ

Fig. 3-4

3-5. TG2 ROLLER, FE HEAD ASSEMBLY (Fig. 3-5)

1) Remove claw Ⓐ to pull out TG2 roller ①.
2) Remove screw ② to pull out FE head assembly.

[Note on Mounting]

- Keep clean the surface contacts tape of TG2 roller ①.

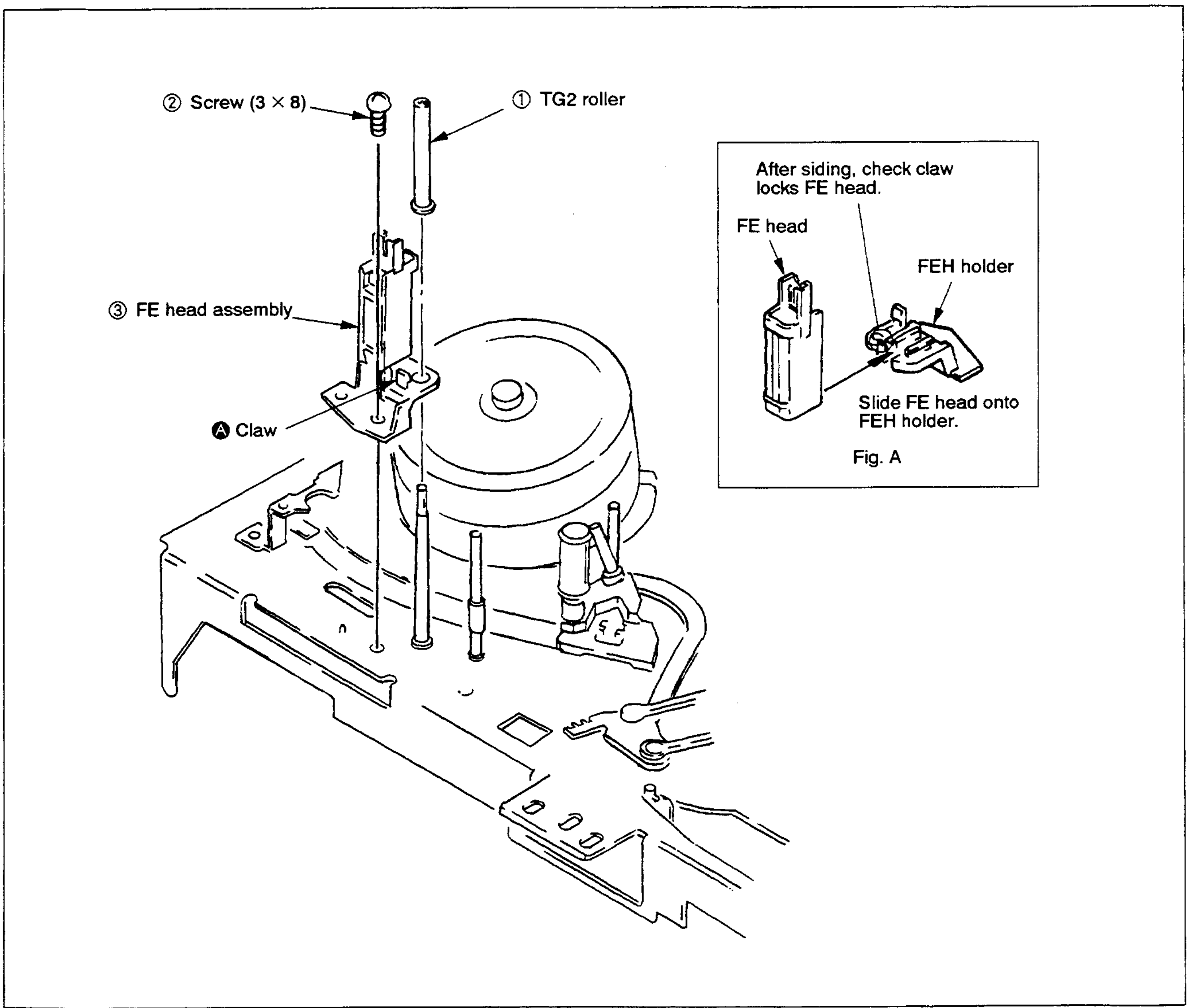

② Screw (3 × 8)
① TG2 roller
③ FE head assembly
Ⓐ Claw
After siding, check claw locks FE head.
FE head
FEH holder
Slide FE head onto FEH holder.
Fig. A

Fig. 3-5

3-6. PINCH PRESS BLOCK ASSEMBLY, ELEVATOR GEAR (Fig. 3-6)

1) Remove E ring ① to pull out pinch press block assembly ②.
2) Remove lid opener ③ by pressing claw Ⓐ in the arrow Ⓑ direction.
3) Pull out elevator gear ④.

[Note on Mounting]

- Apply grease FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions.
- Be sure to match the phase Ⓒ between elevator gear ④ and press gear ⑤ on mounting elevator gear ④.

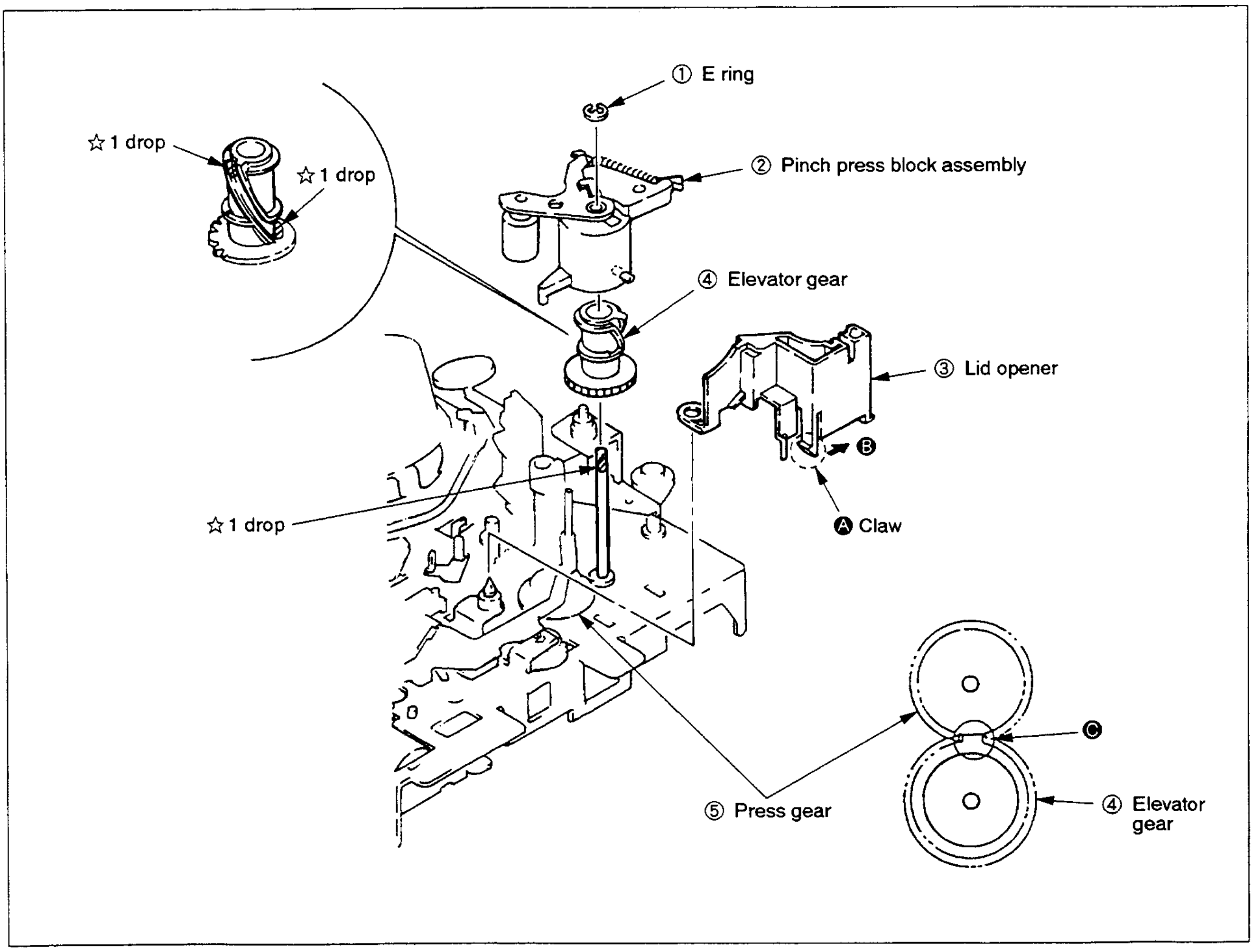

① E ring
☆1 drop
☆1 drop
② Pinch press block assembly
④ Elevator gear
③ Lid opener
Ⓑ
☆1 drop
Ⓐ Claw
Ⓒ
⑤ Press gear
④ Elevator gear

Fig. 3-6

3-7. ACE BLOCK ASSEMBLY (Fig. 3-7)

1) Move torsion coil spring (ACE) ① in the arrow Ⓐ direction.
2) Remove ACE adjustment screw ②.
3) Remove AC height adjustment nut ③ to pull out ACE block assembly ④.

[Note on Mounting]

- Keep clean the surface contacts tape of ACE block assembly ④.
- Be sure to hang torsion coil spring (ACE) ① in the arrow Ⓑ direction.
- Set ACE adjustment screw ② to the height as shown in Fig. A.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.
- After adjustment apply Screw Lock G (1401B) (Jig Ref. No. J-14) at ☆ marked portion.

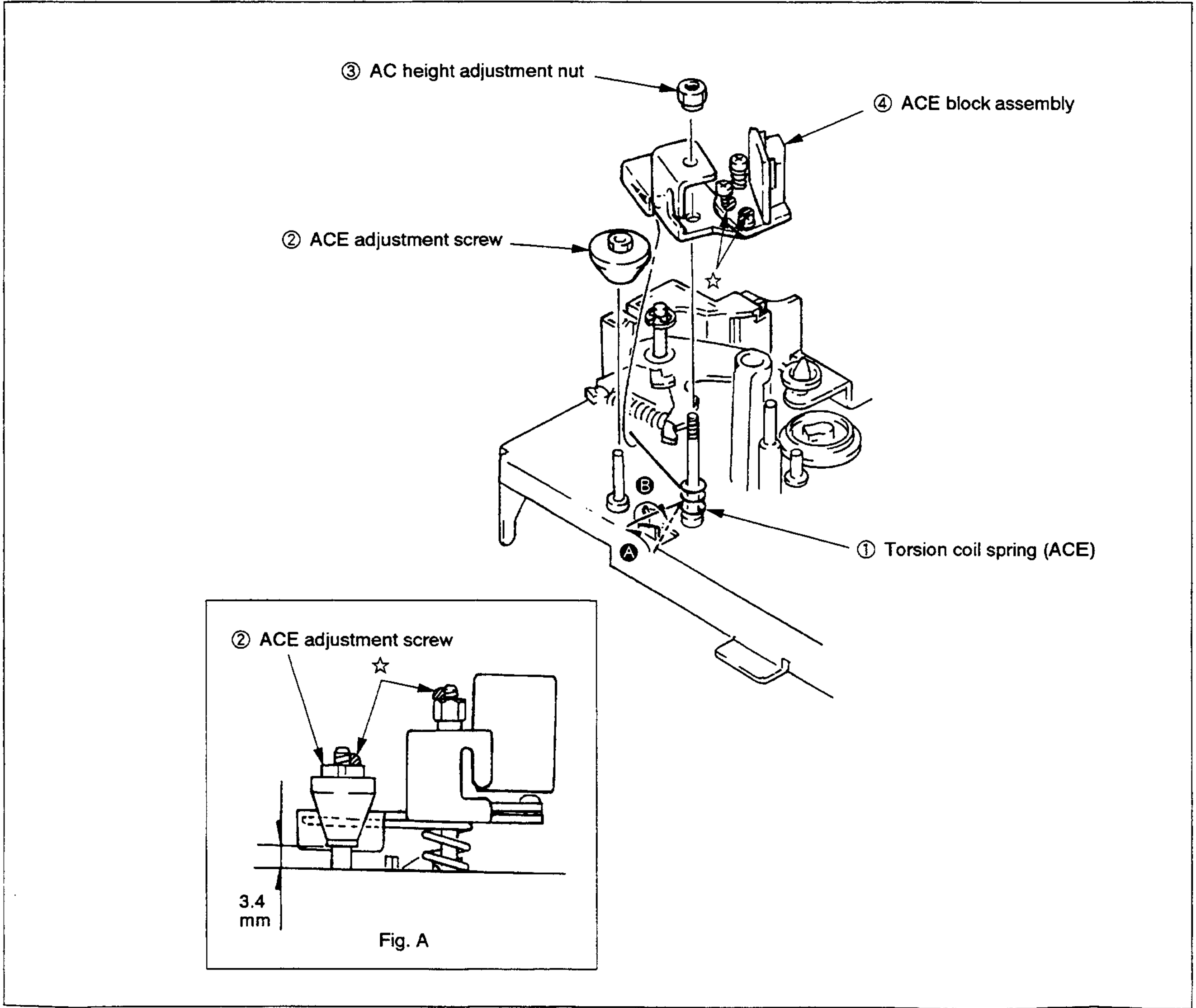

③ AC height adjustment nut
④ ACE block assembly
② ACE adjustment screw
☆
Ⓑ
Ⓐ
① Torsion coil spring (ACE)
② ACE adjustment screw
☆
3.4 mm
Fig. A

Fig. 3-7

3-8. TG3, TG6 GUIDE ROLLER ASSEMBLIES (Fig. 3-8)

1) Loosen screw ① and pull out. TG3 guide roller assembly ② by turning it in the arrow Ⓐ direction.
2) Loosen screw ③ and pull out TG6 guide roller assembly ④ by turning it in the arrow Ⓑ direction.

[Note on Mounting]

- Keep clean the surface contacts tape of TG3 and TG6 guide roller assemblies ②, ④.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

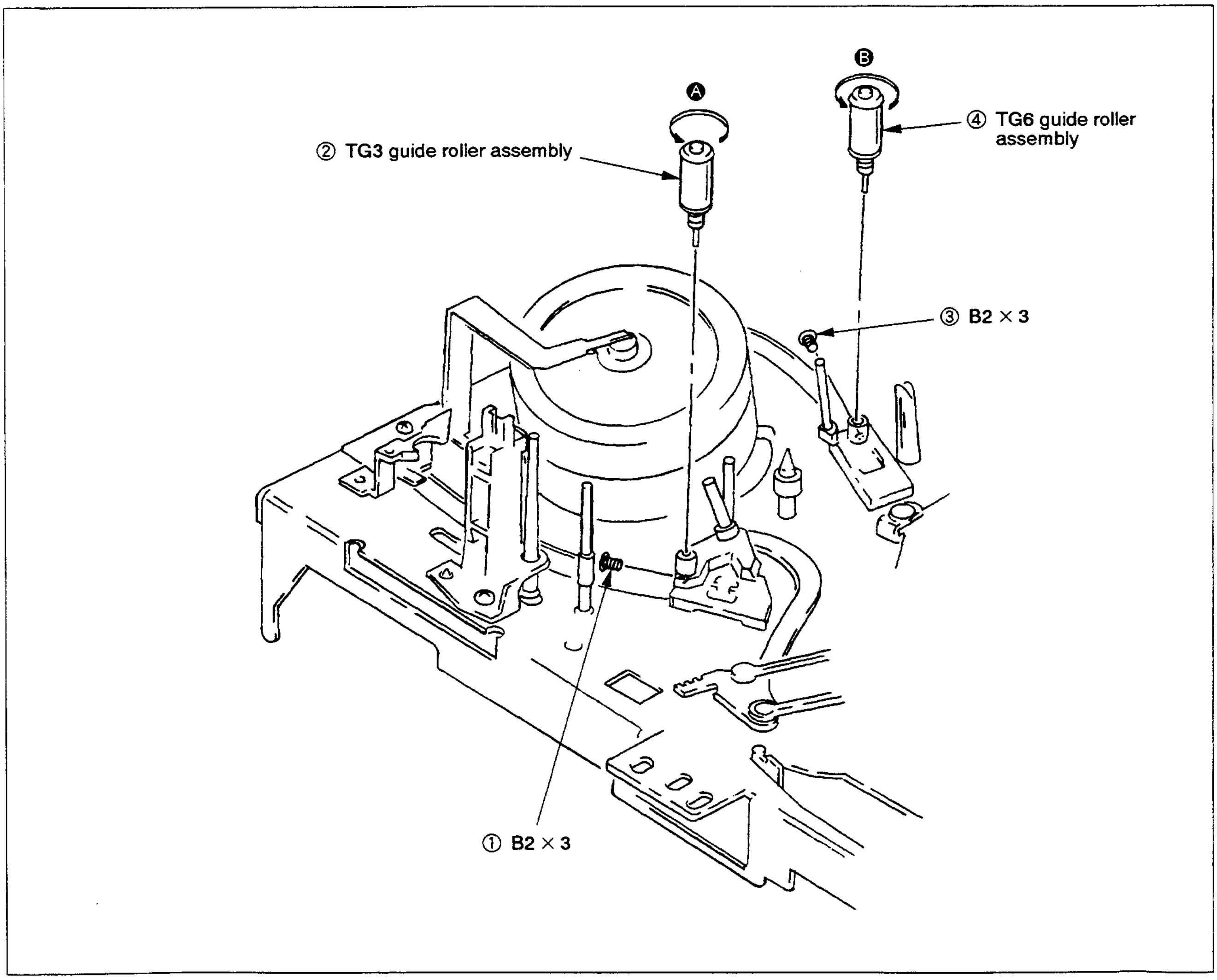

Ⓑ
Ⓐ
④ TG6 guide roller assembly
② TG3 guide roller assembly
③ B2 × 3
① B2 × 3

Fig. 3-8

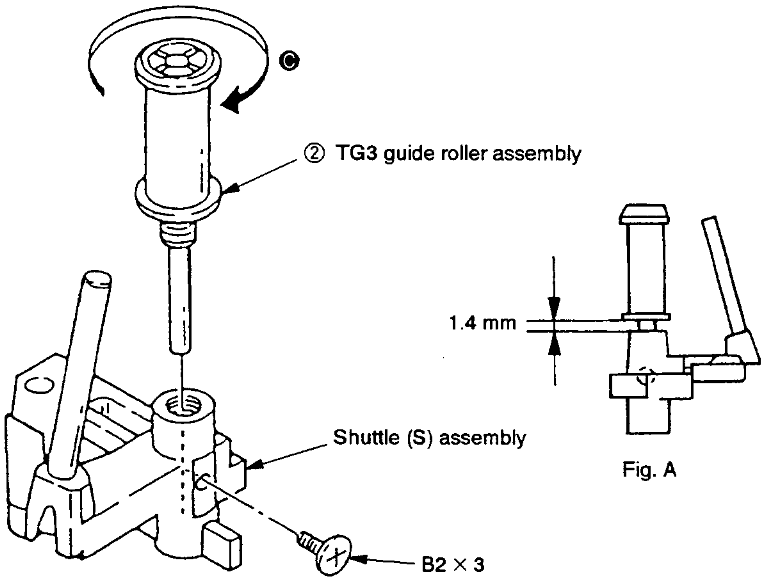

C
② TG3 guide roller assembly
1.4 mm
Shuttle (S) assembly
Fig. A
B2 × 3

Fig. 3-9

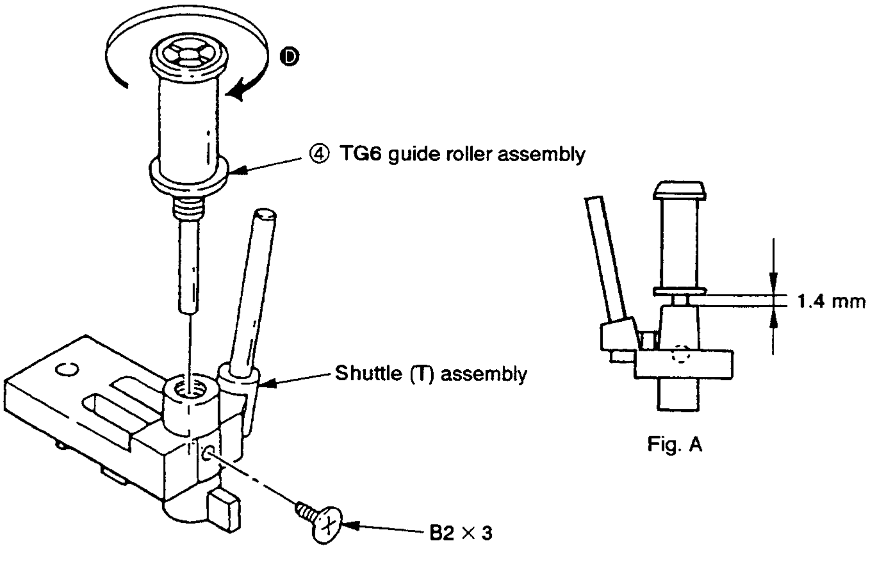

D
④ TG6 guide roller assembly
1.4 mm
Shuttle (T) assembly
Fig. A
B2 × 3

Fig. 3-10

3-9. CAPSTAN MOTOR (Fig. 3-11)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove screws ① to pull out capstan motor ②.

[Note on Mounting]

- Keep clean the surface contacts tape of capstan motor ②.
- On tightening screws ①, first tighten screw A temporarily, next tighten screws in the order B to C to A.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

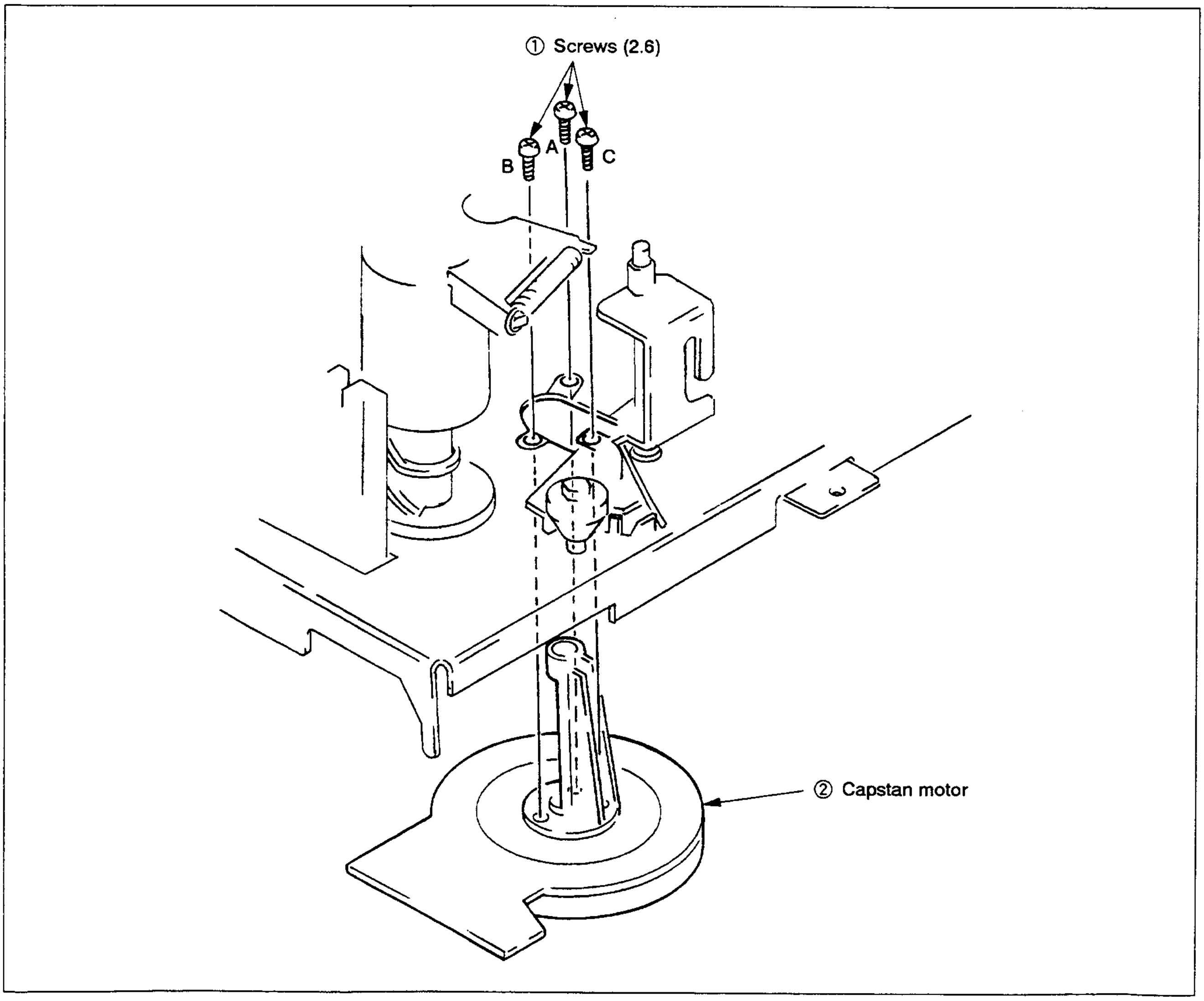


Fig. 3-11

3-10. MAIN BRAKE ASSEMBLIES S AND T (Fig. 3-12)

1) Remove tension spring ①.
2) Remove stopper washer (2) ② to remove neutrality arm ③.
3) Remove pendulum compulsion arm ④ and tension coil spring ⑤.
4) Remove stopper washer (2) ⑥ to remove main brake S assembly ⑦.
5) Remove stopper washer (2) ⑧ to remove main brake T assembly ⑨.

[Note on Mounting]

- Don't touch brake shoes Ⓐ and Ⓑ with bare hand.
- Apply FLOIL FG-055G (Jig Ref. No. J-12) to ☆ marked portions.

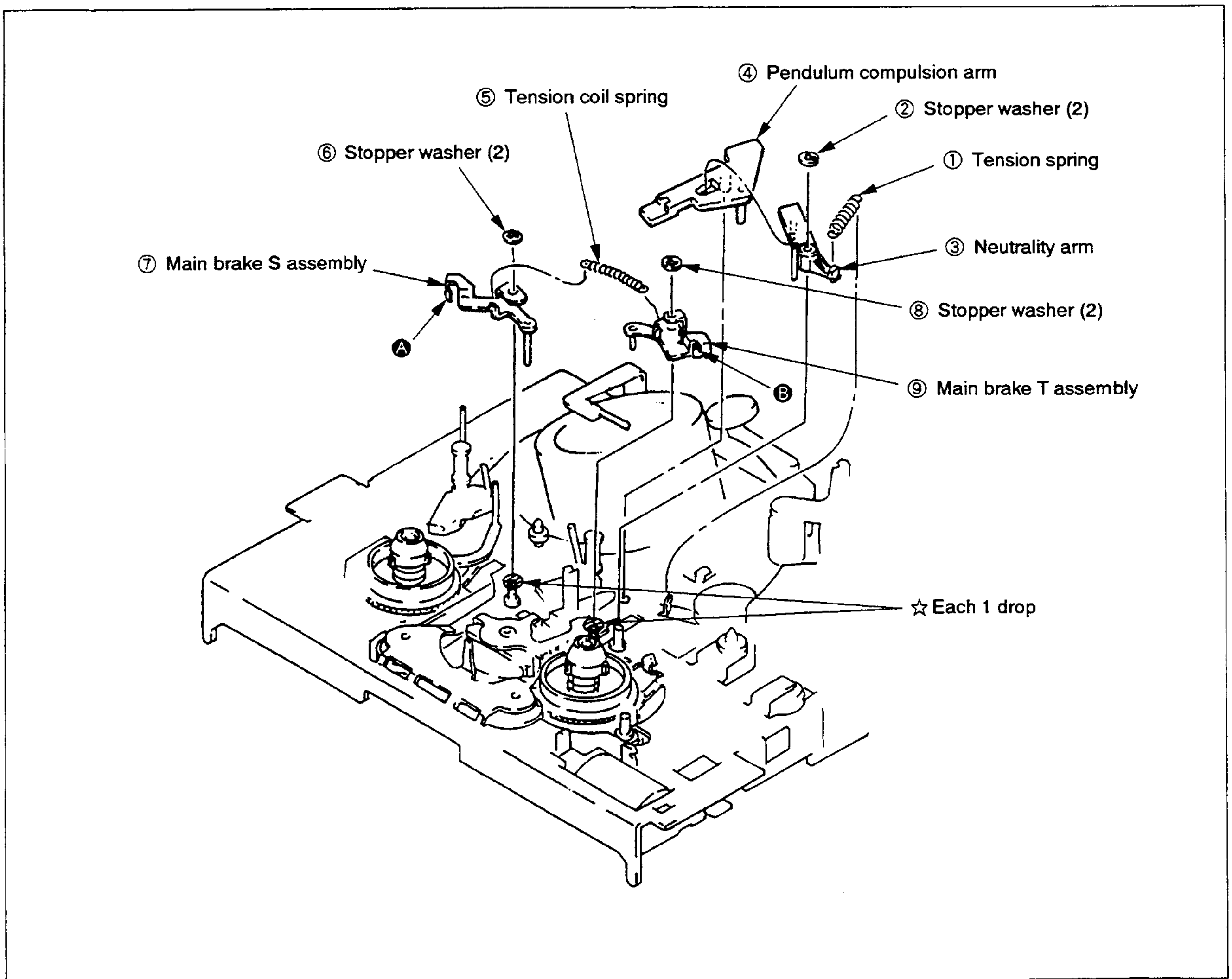

④ Pendulum compulsion arm
⑤ Tension coil spring
② Stopper washer (2)
⑥ Stopper washer (2)
① Tension spring
③ Neutrality arm
⑦ Main brake S assembly
⑧ Stopper washer (2)
Ⓐ
Ⓑ
⑨ Main brake T assembly
☆Each 1 drop

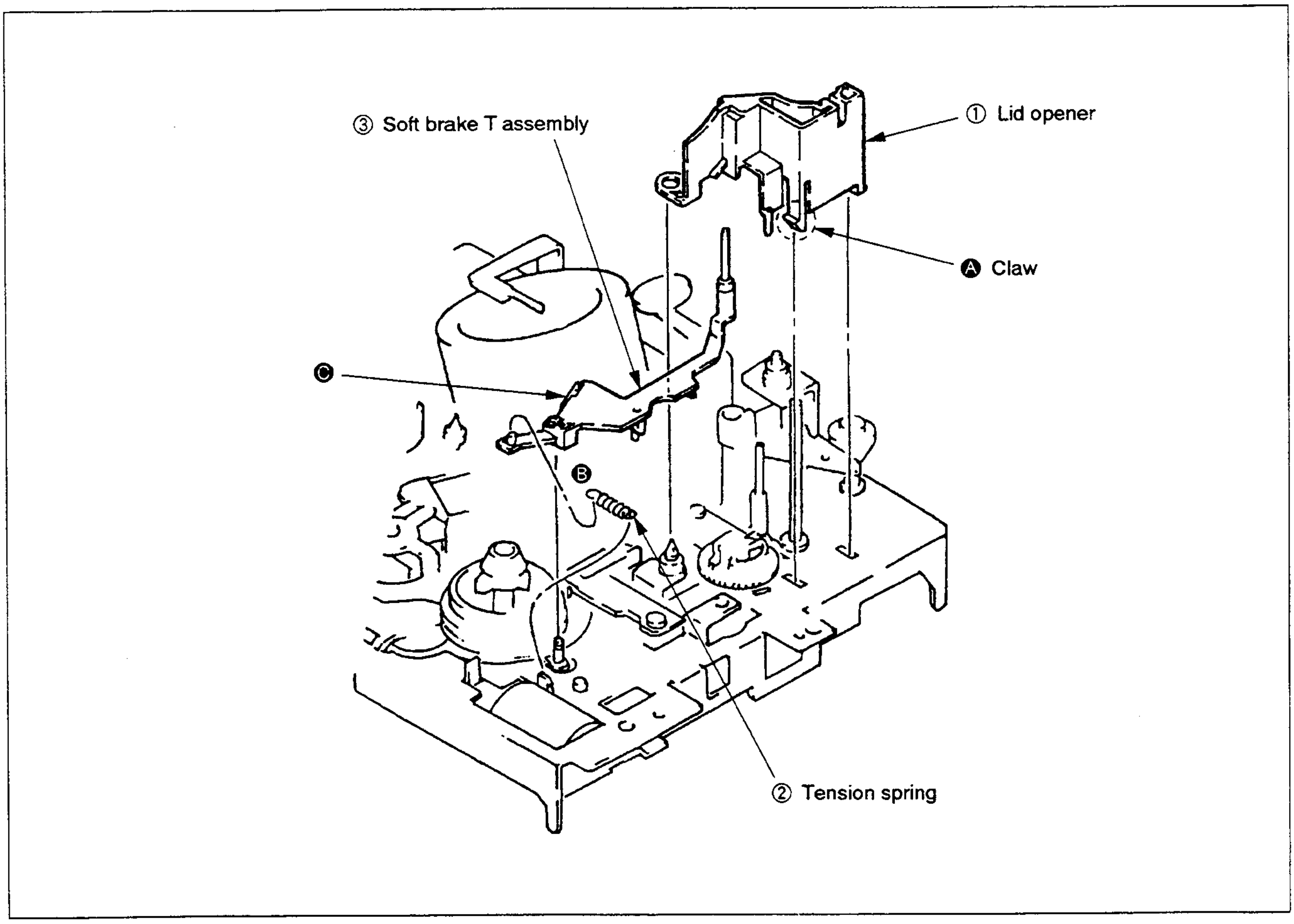
Fig. 3-12

3-11. SOFT BRAKE T ASSEMBLY (Fig. 3-13)

1) Remove pinch press block assembly. (Refer to 3-6.)
2) Remove lid opener ① carefully not to damage claw Ⓐ.
3) Remove tension spring ② from side Ⓑ to pull out soft brake T assembly ③.

[Note on Mounting]

- Don't touch brake shoes Ⓒ with bare hand.



③ Soft brake T assembly
① Lid opener
Ⓐ Claw
Ⓒ
Ⓑ
② Tension spring

Fig. 3-13

3-12. RVS BRAKE ARM ASSEMBLY, REEL TABLE (T) ASSEMBLY (Fig. 3-14)

1) Remove main brake T assembly. (Refer to 3-10.)
2) Remove soft brake T assembly. (Refer to 3-11.)
3) Remove tension coil spring ① in the order Ⓐ to Ⓑ.
4) Remove RVS brake arm assembly ②.
5) Remove stopper washer (2) ③ to pull out reel table (T) assembly ④.

[Note on Mounting]

- Apply one drop of Diamond Oil NT-68 (Jig Ref. No. J-13) to ☆ marked portion before mounting reel table (T) assembly ④. (Fig. A)
- Don't touch the hatched portion on reel table (T) assembly ④ and brake shoe Ⓒ of RVS brake arm assembly ② with bare hand.

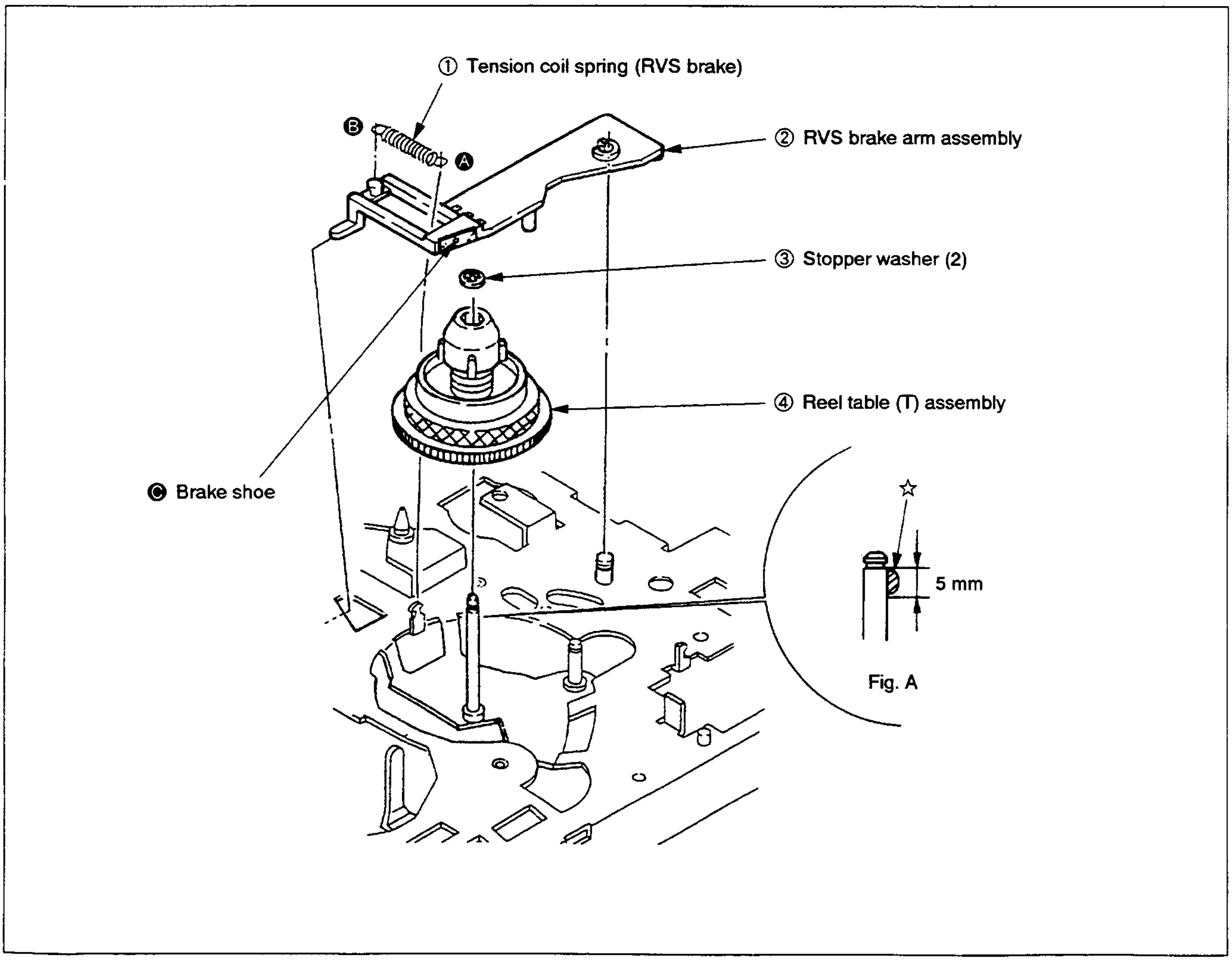

① Tension coil spring (RVS brake)
Ⓑ
Ⓐ
② RVS brake arm assembly
③ Stopper washer (2)
④ Reel table (T) assembly
Ⓒ Brake shoe
☆
5 mm
Fig. A

Fig. 3-14

3-13. TG8 ASSEMBLY (Fig. 3-15)

1) Remove TG8 retainer ① to pull out TG8 assembly ②.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portion.
- Keep clean the surface contacts tape of TG8 assembly ②.
- Be careful not to change the shape of TG8 retainer ①.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

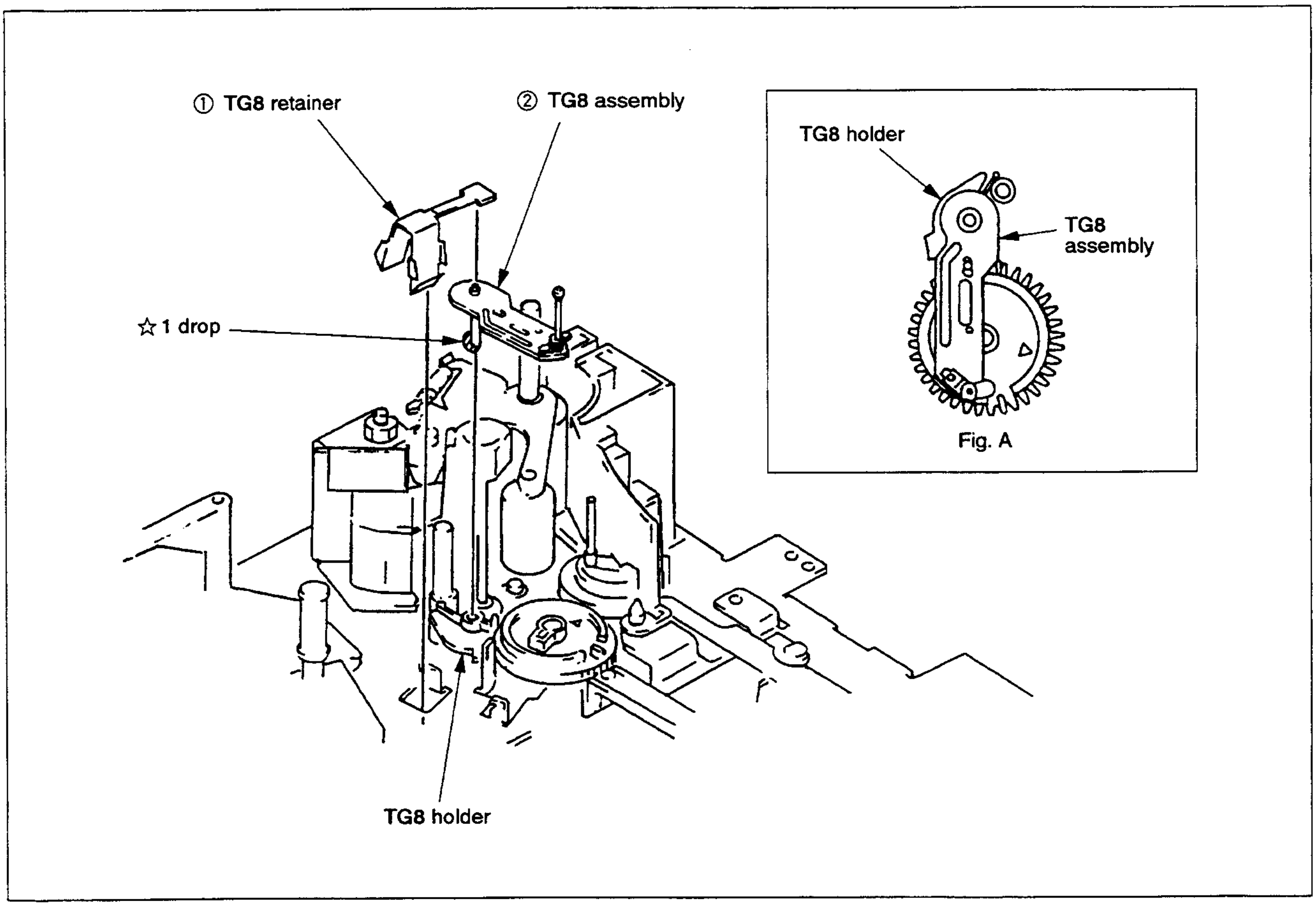

① TG8 retainer
② TG8 assembly
☆ 1 drop
TG8 holder
TG8 holder
TG8 assembly
Fig. A

Fig. 3-15

3-14. TG8 HOLDER (Fig. 3-16)

1) Remove TG8 assembly. (Refer to 3-13)
2) Pull out TG8 holder ①.

[Note on Mounting]

- Be careful about the direction of TG8 holder ①. (Ⓐ of Fig. A)

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

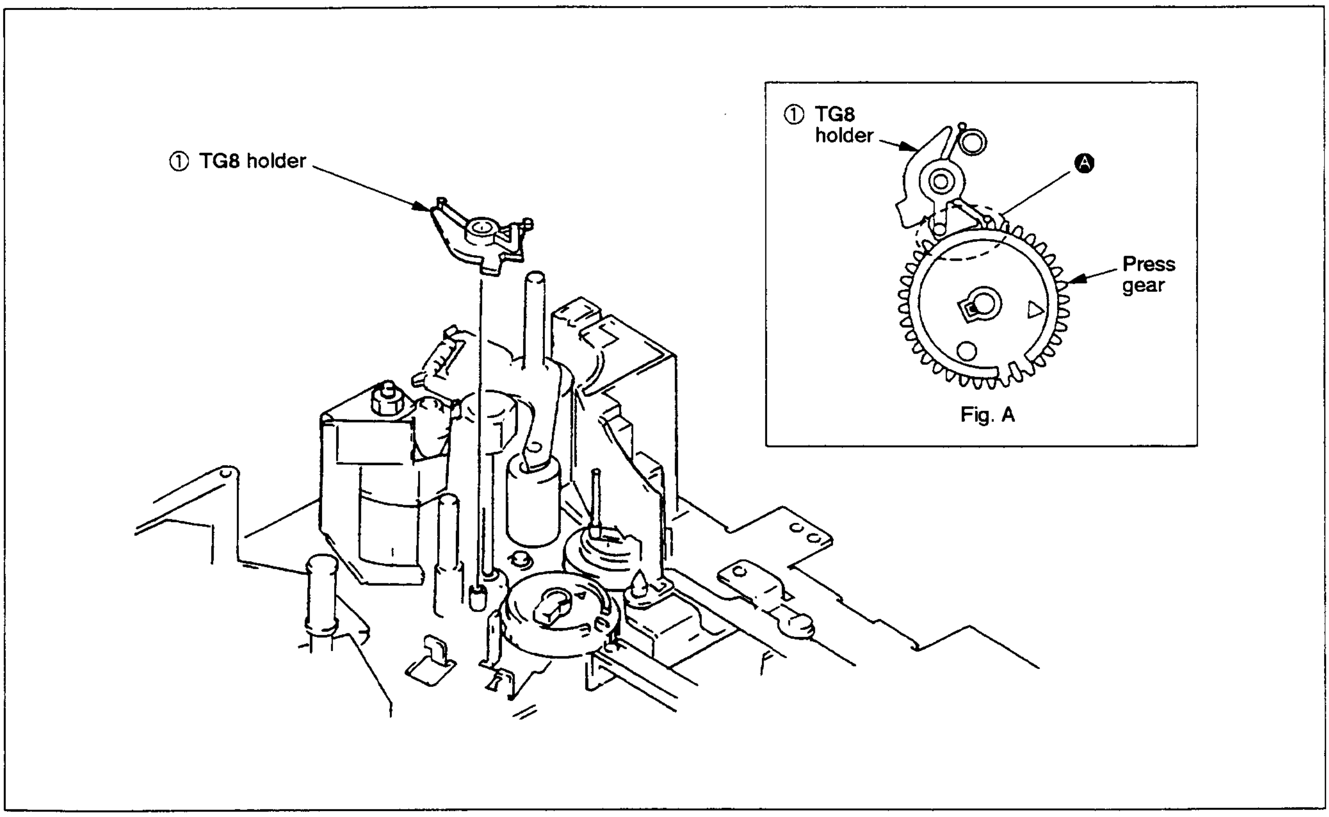

① TG8 holder
① TG8 holder
Ⓐ
Press gear
Fig. A

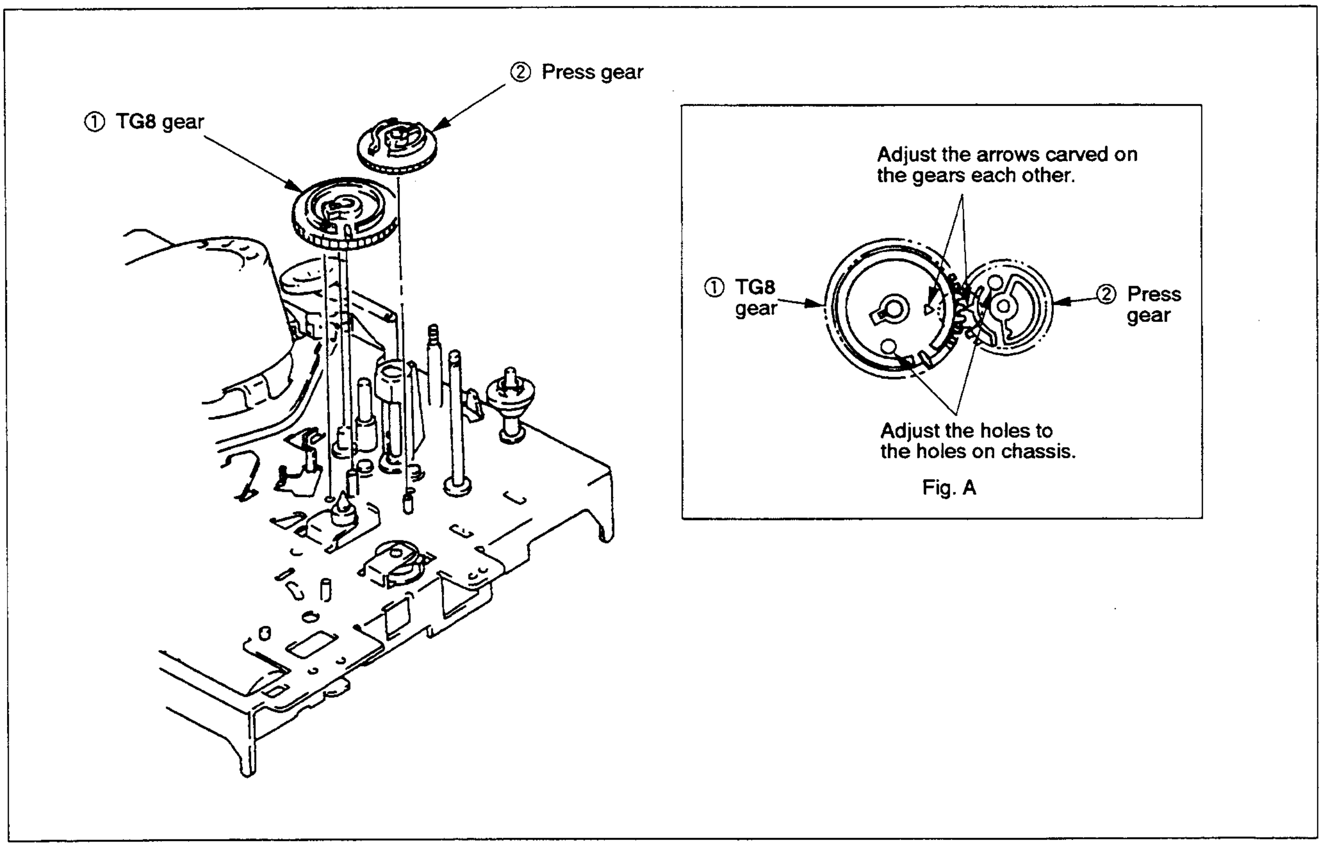
Fig. 3-16

3-15. TG8 AND PRESS GEARS (Fig. 3-17)

1) Remove pinch press block assembly. (Refer to 3-6.)
2) Remove soft brake T assembly. (Refer to 3-11.)
3) Remove TG8 assembly. (Refer to 3-13.)
4) Remove TG8 holder. (Refer to 3-14.)
5) Pull out TG8 gear ① or press gear ②.

[Note on Mounting]

- Adjust the holes on gears to the holes on chassis. (Fig. A)
- Adjust the arrows carved on gears each other. (Fig. A)



Adjust the arrows carved on the gears each other.

Adjust the holes to the holes on chassis.

Fig. A

Fig. 3-17

3-16. CAM MOTOR CHASSIS BLOCK ASSEMBLY, UPPER/LOWER COMMUNICATION GEAR (Fig. 3-18)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove screws ① to remove cam motor chassis assembly ②.
4) Pull out upper/lower communication gear ③.

[Note on Mounting]

- First, check main slider ④ slides fully in the arrow Ⓔ direction.
- Set rotary encoder switch position to "E" seen from the window of cam motor chassis. (Fig. A)
- Tighten screws ① in the order Ⓐ to Ⓑ to Ⓒ to Ⓓ.

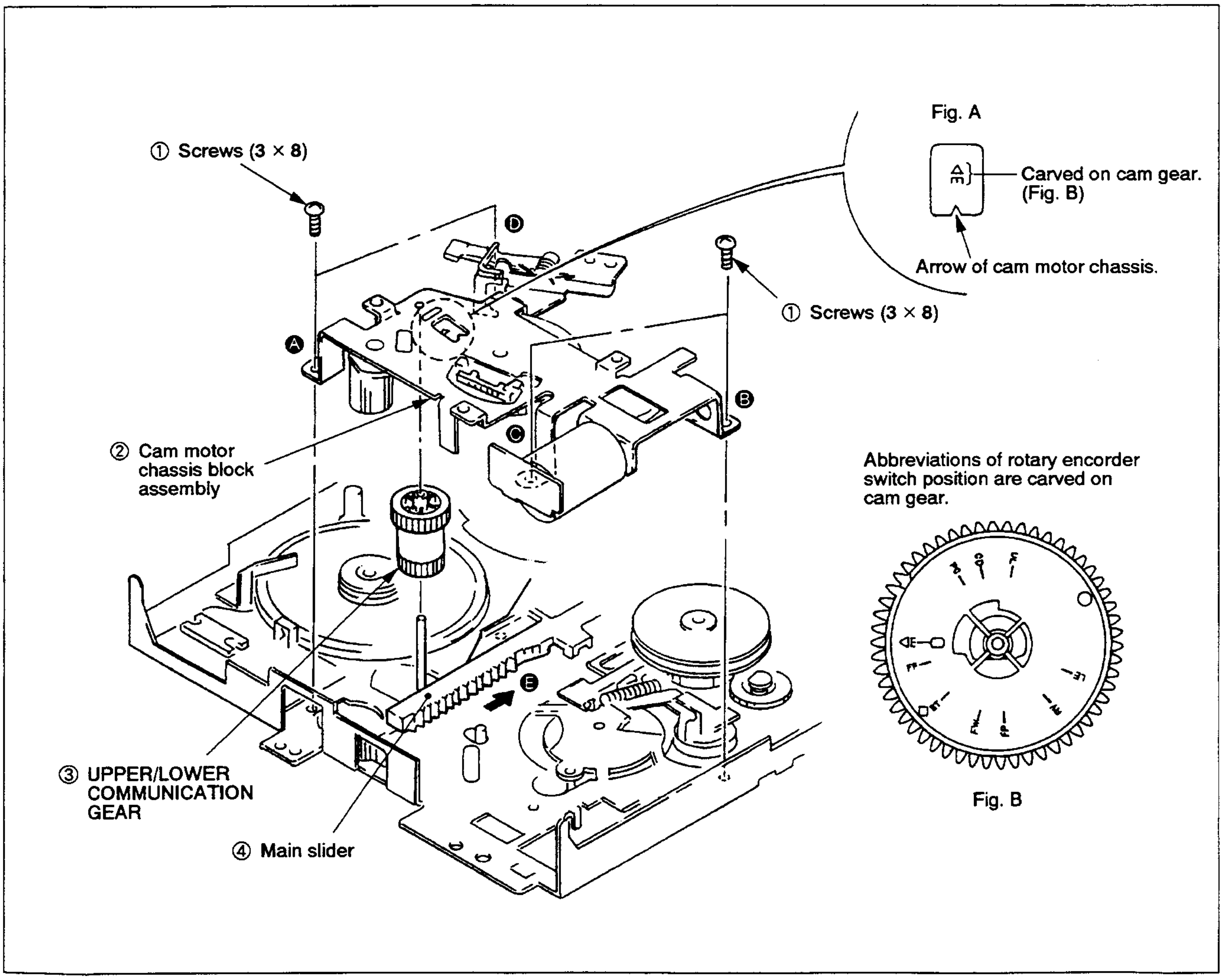

① Screws (3 × 8)
Ⓓ
Ⓐ
Ⓒ
Ⓑ
Ⓔ
① Screws (3 × 8)
② Cam motor chassis block assembly
③ UPPER/LOWER COMMUNICATION GEAR
④ Main slider
Fig. A
Carved on cam gear. (Fig. B)
Arrow of cam motor chassis.
Abbreviations of rotary encorder switch position are carved on cam gear.
Fig. B

Fig. 3-18

3-17. ROTARY ENCODER SWITCH (Fig. 3-19)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly (Refer to 3-15.) and turn upside on the bottom.
4) Remove stopper washer (2) ① to pull out worm wheel ②.
5) Remove stopper washer (2) ③ to pull out cam gear ④.
6) Pull out FL driving gear ⑤ and rotary encoder switch ⑥.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions. (Fig. 3-19, A)
- Adjust the hole 🅐 to the hole on cam motor chassis. (Fig. B)
- Adjust the holes 🅑 and 🅒 to the hole on cam motor chassis. (Fig. C)

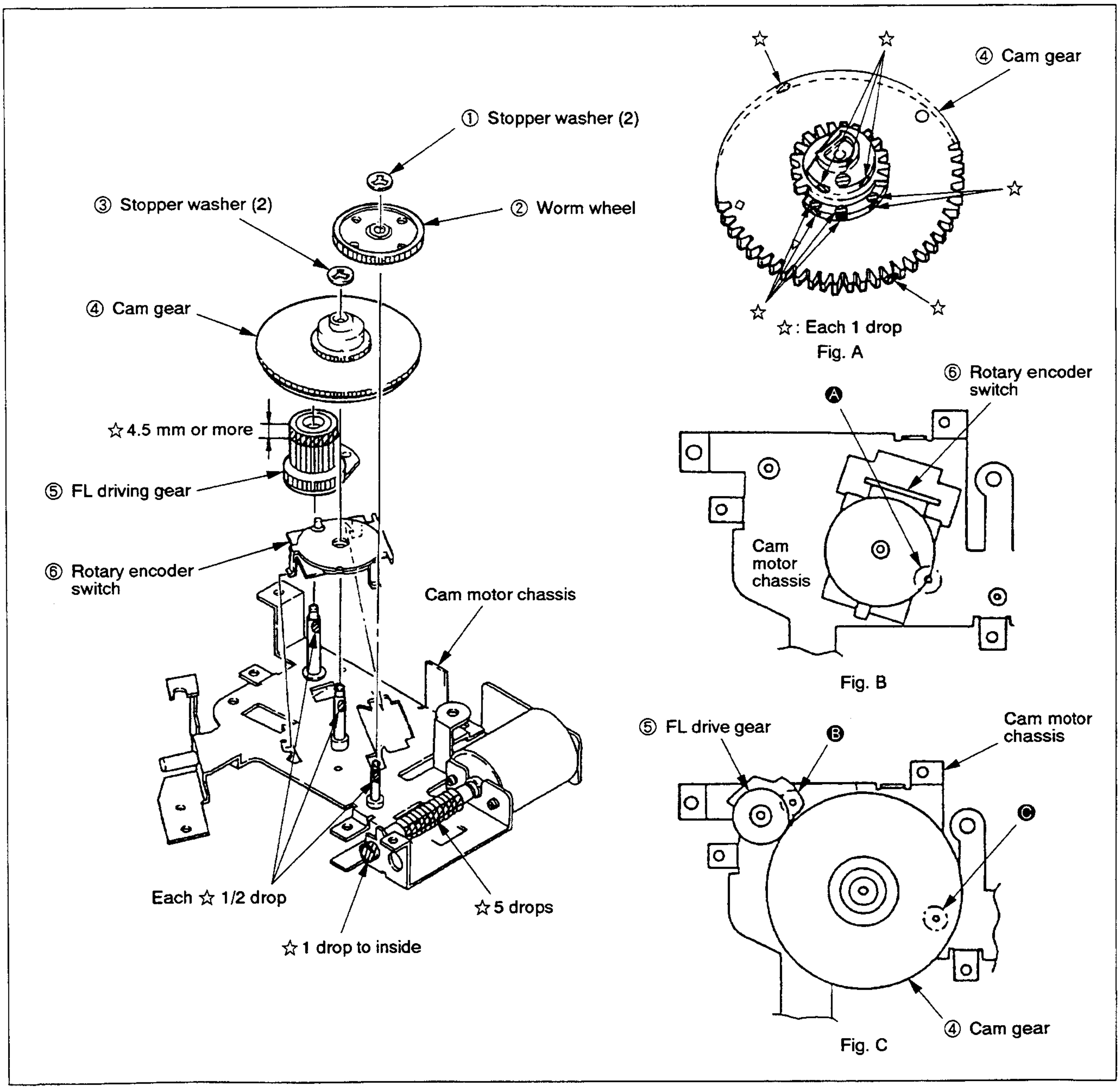

① Stopper washer (2)
② Worm wheel
③ Stopper washer (2)
④ Cam gear
☆4.5 mm or more
⑤ FL driving gear
⑥ Rotary encoder switch
Cam motor chassis
Each ☆ 1/2 drop
☆5 drops
☆1 drop to inside
☆
④ Cam gear
☆: Each 1 drop
Fig. A
⑥ Rotary encoder switch
🅐
Cam motor chassis
Fig. B
⑤ FL drive gear
🅑
Cam motor chassis
🅒
④ Cam gear
Fig. C

Fig. 3-19

3-18. MAIN SLIDER (Fig. 3-20)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove screw ① to remove retainer ②.
5) Pull out main slider ③.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) as shown in Fig. A.
- At the last, slide main slider fully in the arrow Ⓐ direction.

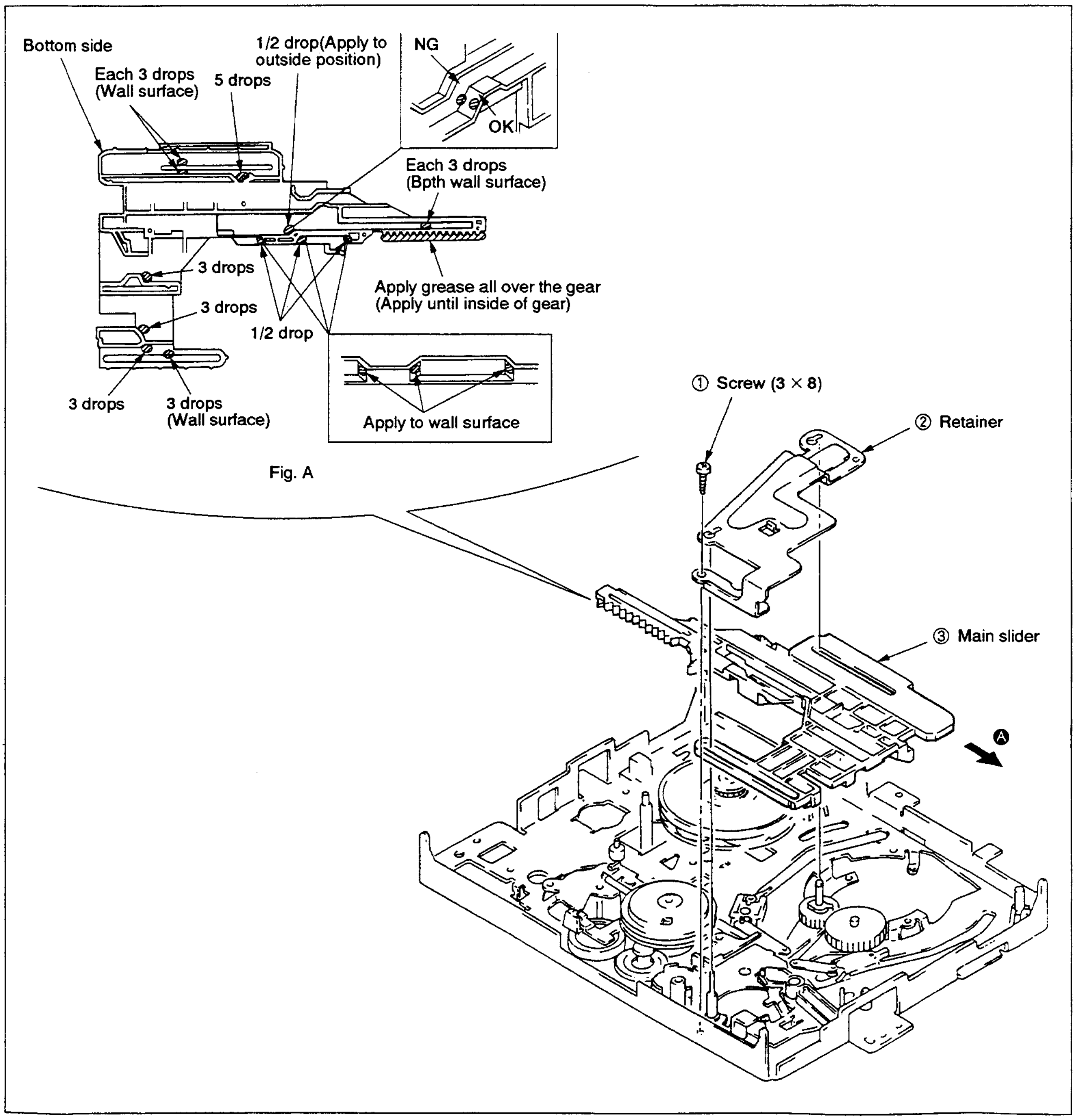

Bottom side
1/2 drop(Apply to outside position)
Each 3 drops (Wall surface)
5 drops
NG
OK
Each 3 drops (Bpth wall surface)
3 drops
3 drops
1/2 drop
Apply grease all over the gear (Apply until inside of gear)
3 drops
3 drops (Wall surface)
Apply to wall surface
Fig. A
① Screw (3 × 8)
② Retainer
③ Main slider
Ⓐ

Fig. 3-20

3-19. SHUTTLE T BLOCK AND LOADING GEAR T BLOCK ASSEMBLIES (Fig. 3-21)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-18.)
5) Remove screw ① to remove loading leaf (T) spring ② and shuttle T block assembly ③.
6) Pull out loading gear T block assembly ④.

[Note on Mounting]

- Adjust the phase 🅐 between loading gear (T) and loading gear (S). (Fig. A)
- Keep clean the surface contacts tape of shuttle T block assembly ③.

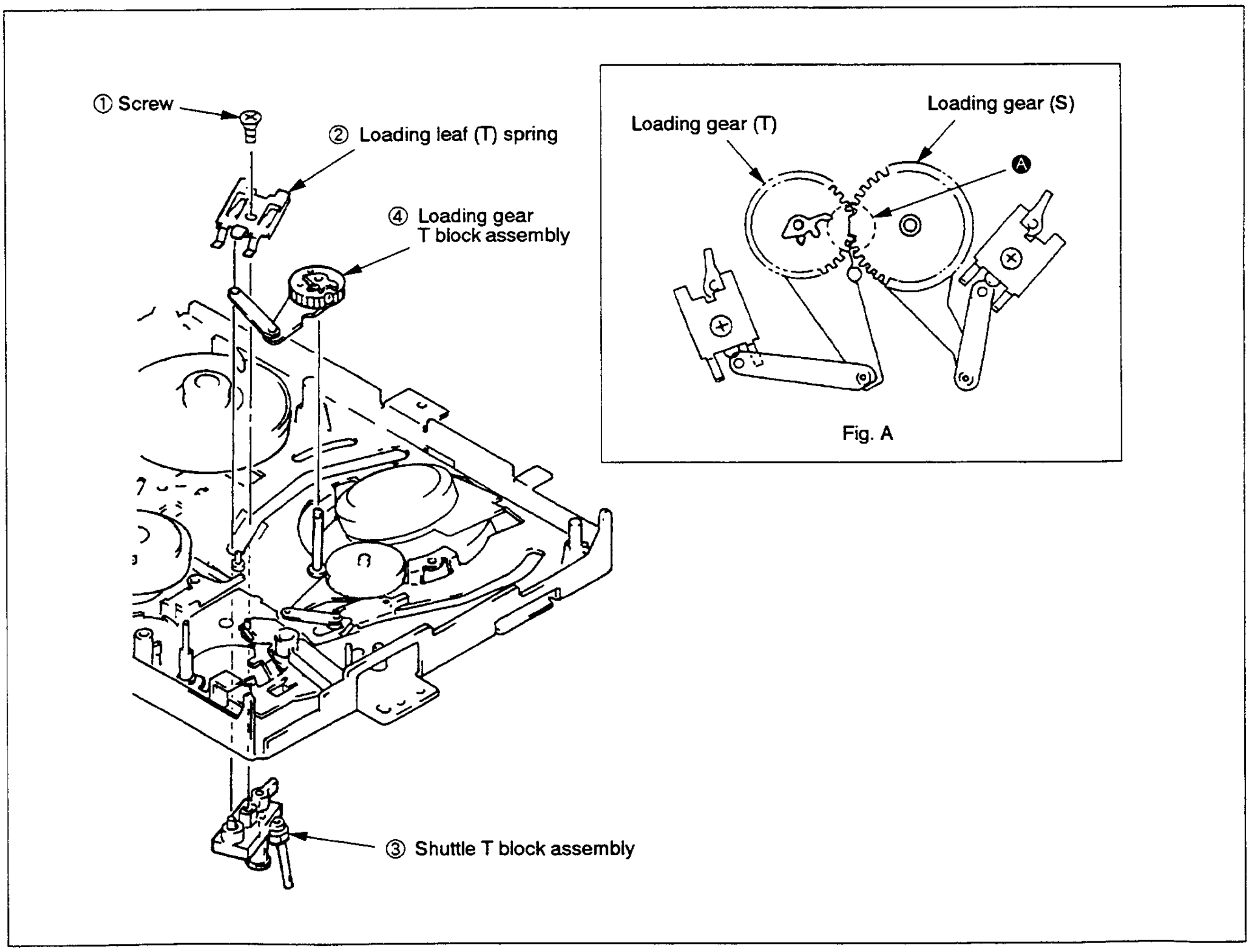

① Screw
② Loading leaf (T) spring
④ Loading gear T block assembly
③ Shuttle T block assembly
Loading gear (T)
Loading gear (S)
🅐
Fig. A

Fig. 3-21

3-20. SHUTTLE S BLOCK AND LOADING GEAR S BLOCK ASSEMBLIES (Fig. 3-22)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-15.)
5) Remove screw ① to remove loading leaf (S) spring ② and shuttle S block assembly ③.
6) Pull out loading gear S block assembly ④.

[Note on Mounting]

- Adjust the phase Ⓐ between loading gear (S) and loading gear (S). (Fig. A)
- Keep clean the surface contacts tape of shuttle S block assembly ③.

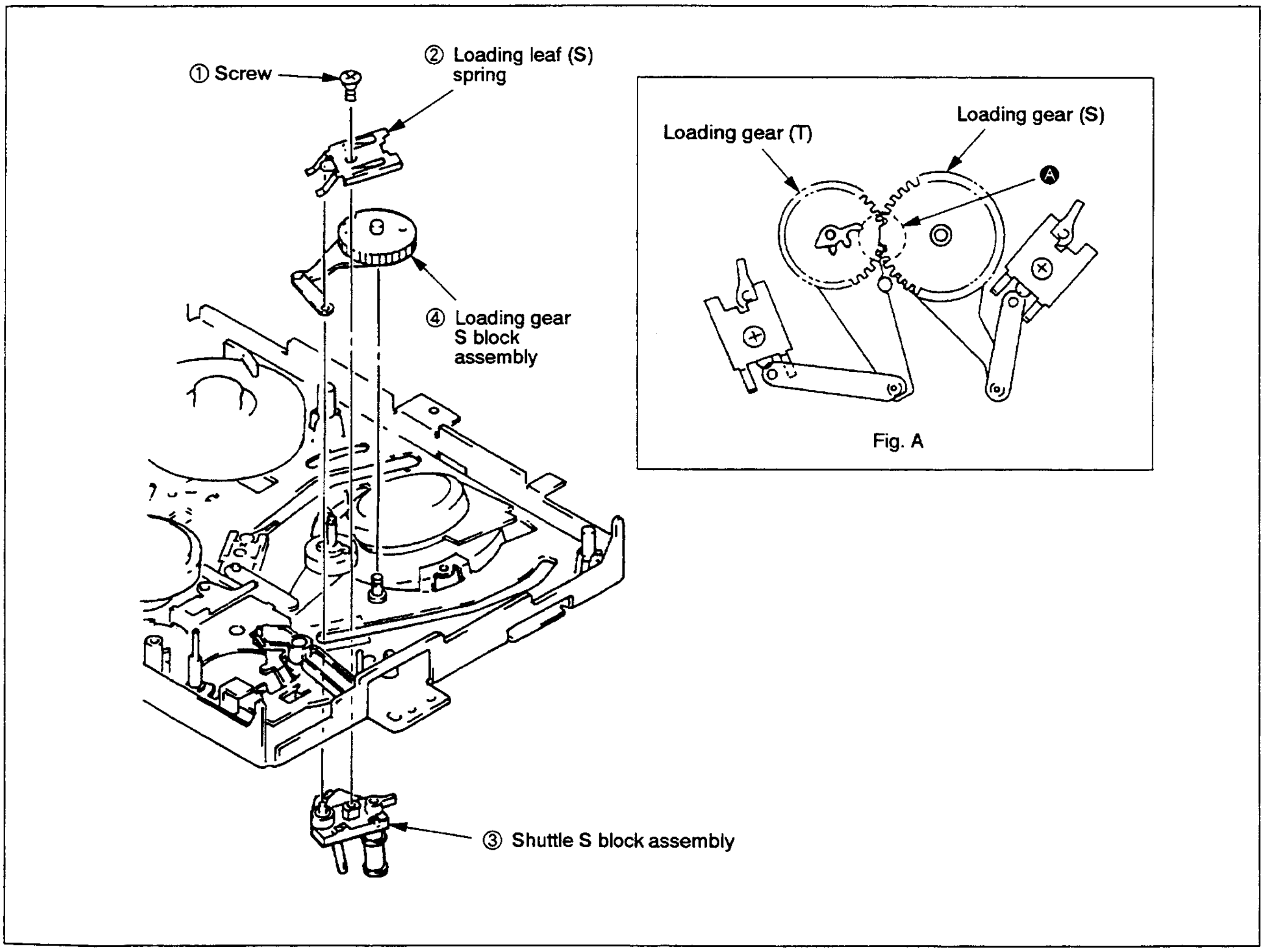

① Screw
② Loading leaf (S) spring
④ Loading gear S block assembly
③ Shuttle S block assembly
Loading gear (T)
Loading gear (S)
Ⓐ
Fig. A

Fig. 3-22

3-21. REEL TABLE (S) ASSEMBLY (Fig. 3-23)

1) Remove tension spring ① from the chassis side.
2) Remove stopper washer (2) ② to pull out soft brake (S) ③.
3) Move TG1 band ④ over the reel table.
4) Remove stopper washer (2) ⑤.
5) While pressing main brake S assembly ⑥, pull out reel table (S) assembly ⑦.

[Note on Mounting]

- Apply one drop of Diamond Oil NT-68 (Jig Ref. No. J-13) to ☆ marked portion before mounting reel table (S) assembly ⑥. (Fig. A)
- Don't touch the hatched portion on reel table (S) assembly ⑥ with bare hand.

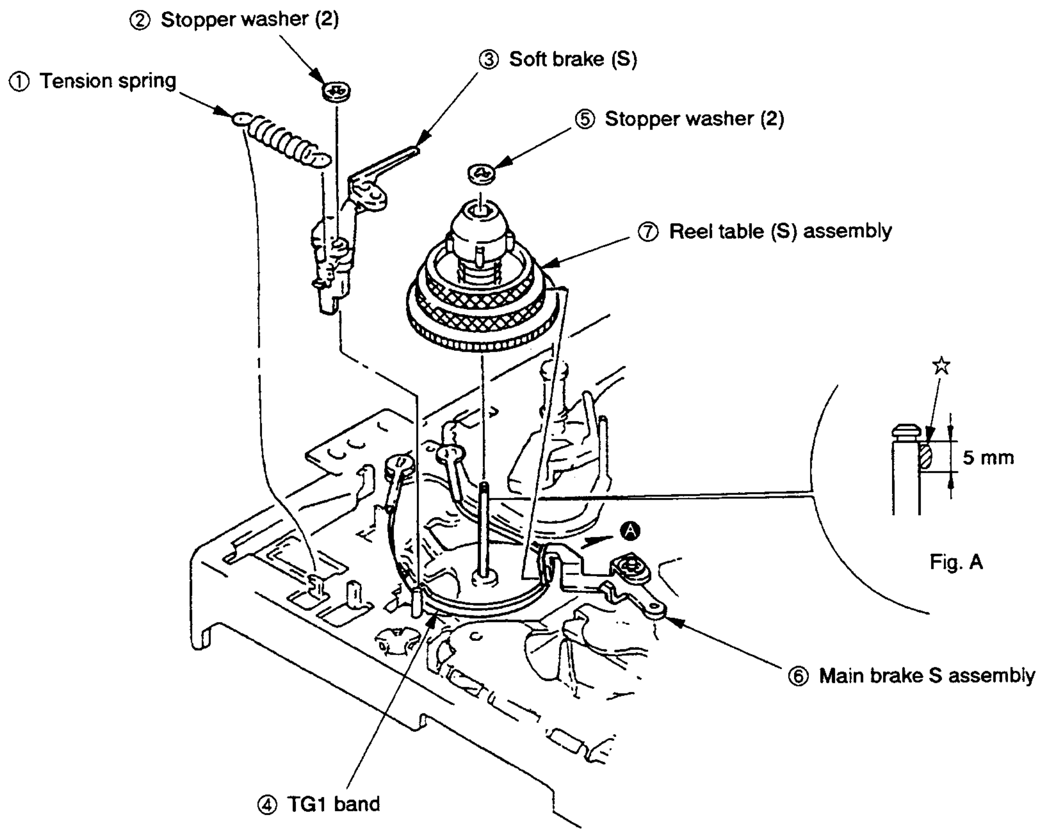

② Stopper washer (2)
① Tension spring
③ Soft brake (S)
⑤ Stopper washer (2)
⑦ Reel table (S) assembly
☆
5 mm
A
Fig. A
⑥ Main brake S assembly
④ TG1 band

Fig. 3-23

3-22. TG1 ASSEMBLY (Fig. 3-24)

1) Set the mechanism to the loading-end condition referring to 1-1. (Cam gear indicates "LE". (Refer to Fig. A and B of Fig. 3-18.))
2) Remove tension spring ① in the order Ⓐ to Ⓑ.
3) Remove stopper washer (2) ② to pull out TG1 assembly ③.

[Note on Mounting]

- Apply one drop of Diamond Oil NT-68 (Jig Ref. No. J-13) to ☆ marked portion.
- Keep clean the felt side of TG1 assembly.

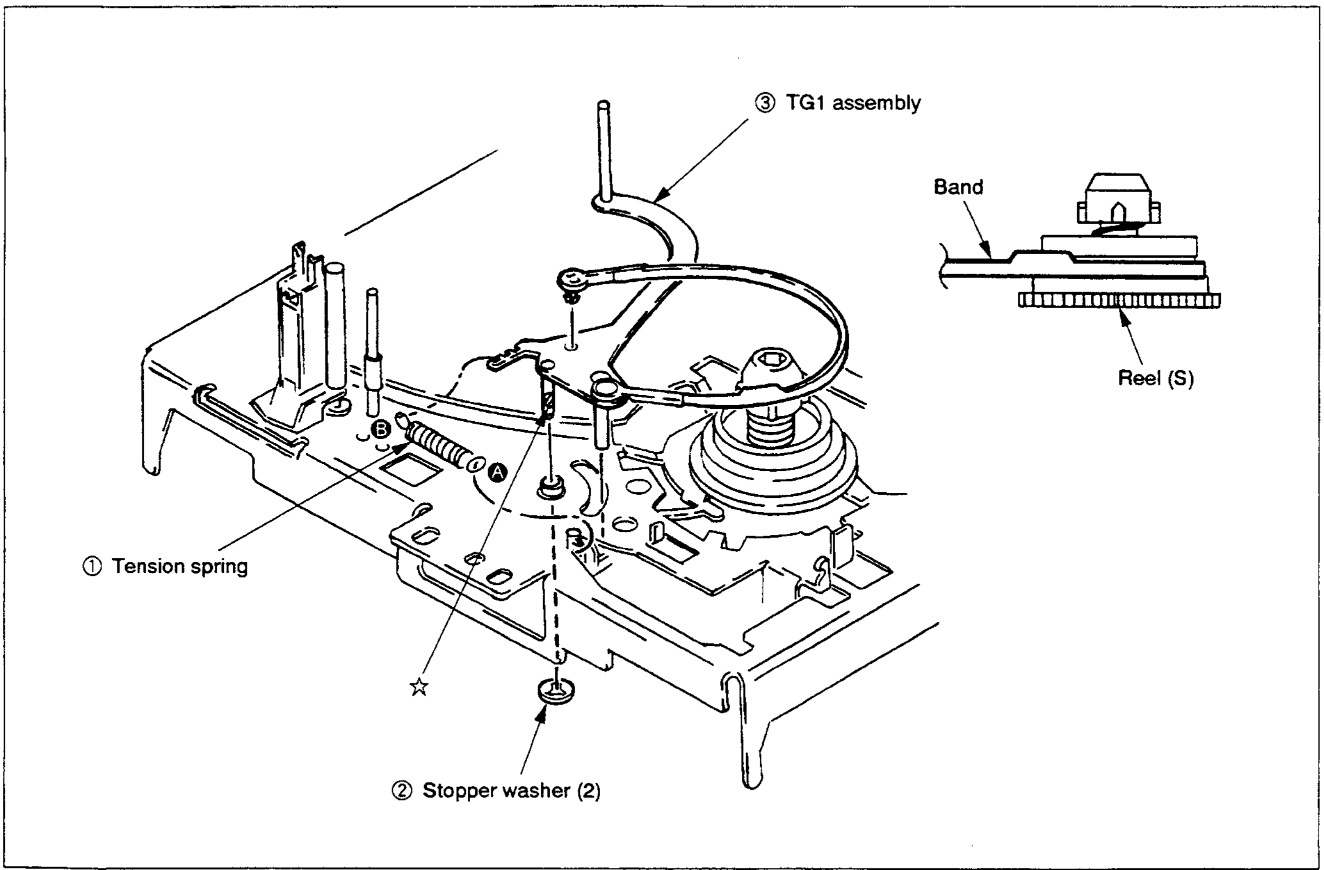

③ TG1 assembly
Band
Reel (S)
Ⓑ
Ⓐ
① Tension spring
☆
② Stopper washer (2)

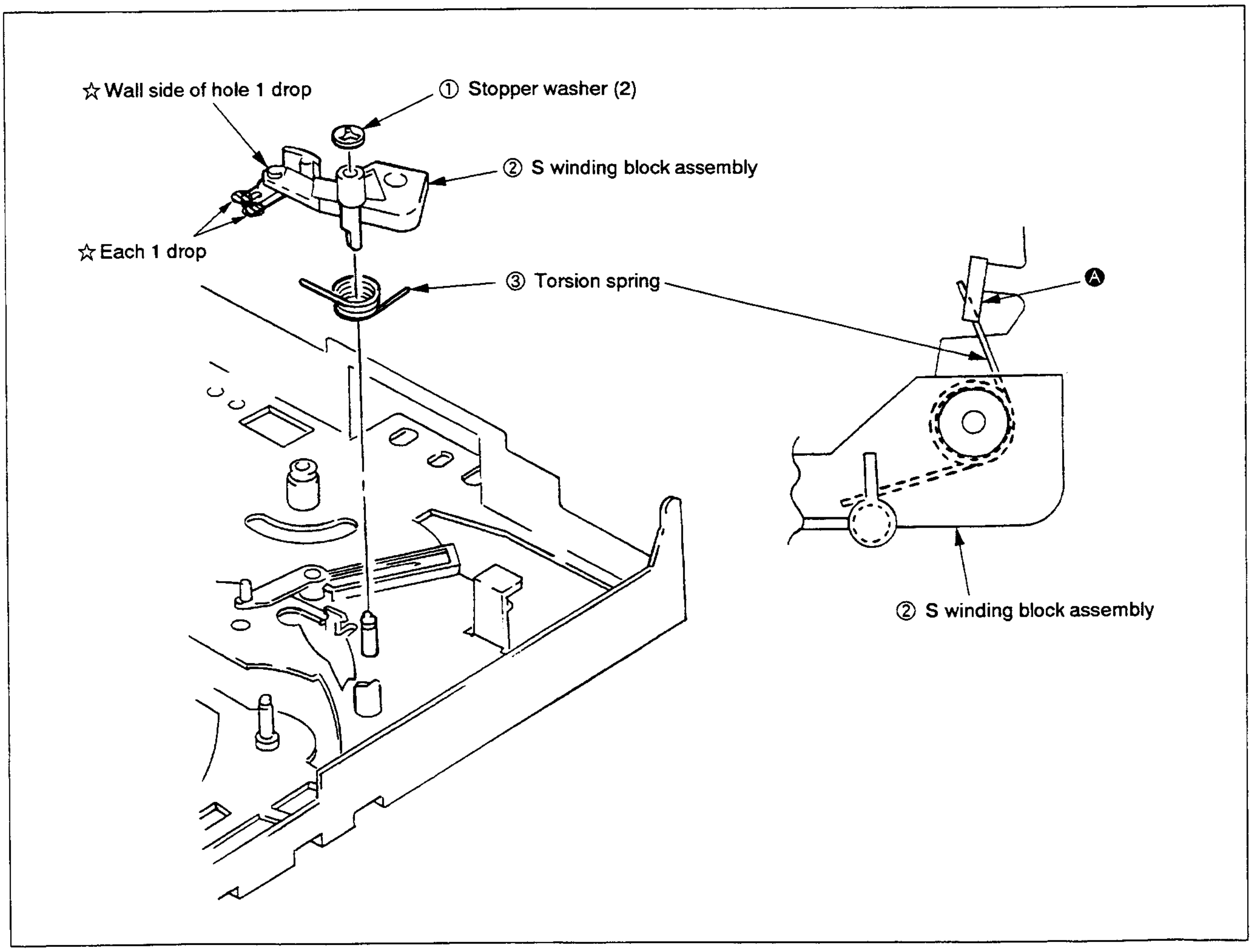
Fig. 3-24

3-23. S WINDING BLOCK ASSEMBLY (Fig. 3-25)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-18.)
5) Remove stopper washer (2) ① to pull out S winding block assembly ②.
6) Remove torsion spring ③.

[Note on Mounting]

- At the last, hang torsion spring ② to the position Ⓐ.
- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions.



☆Wall side of hole 1 drop
① Stopper washer (2)
② S winding block assembly
☆Each 1 drop
③ Torsion spring
Ⓐ
② S winding block assembly

Fig. 3-25

3-24. TRIGGER LEVER AND RKB BLOCK ASSEMBLIES (Fig. 3-26)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-18.)
5) Remove tension spring ① in the order Ⓐ to Ⓑ to remove trigger lever assembly ②.
6) Remove screws (3 × 8) ③ to remove RKB block assembly ④.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions on trigger lever assembly. (Fig. A)

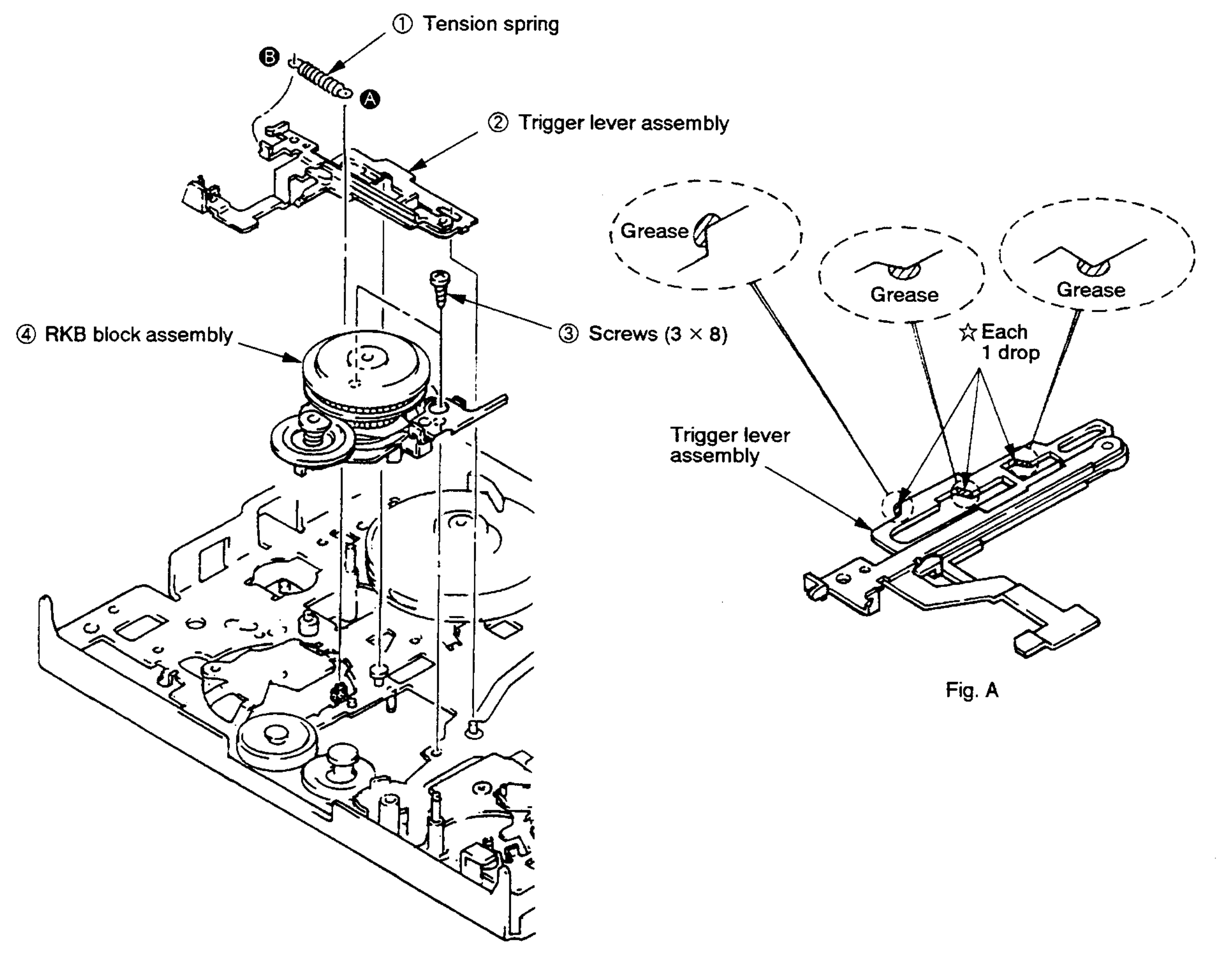

① Tension spring
Ⓑ
Ⓐ
② Trigger lever assembly
④ RKB block assembly
③ Screws (3 × 8)
Grease
Grease
Grease
☆Each
1 drop
Trigger lever
assembly
Fig. A

Fig. 3-26

4. ADJUSTMENT

4-1. TAPE PATH ADJUSTMENT

The "Tape path" refers to the route of the tape from the supply reel disk to the take-up reel disc via the video heads.

Each component part of the tape transport system particularly the surface of parts which make direct contact with the tape must always be kept clean, free of dust, oil, scratches and so forth.

The tape path system is factory preadjusted, when parts of the tape transport system are replaced, be sure to make the required adjustments as precisely as possible in order to ensure stable tape transport.

4-1-1. TENSION REGULATOR (TG1) POSITION/ TENSION ADJUSTMENT (Fig. 4-1)

Purpose: stabilizes contact of the video head and the tape to maintain the tension of the tape so that it feeds at a constant level.

• Position adjustment

Mode	Treading is completed without a cassette loaded
Adjustment locations	Eccentric pin of TG1 band assembly

[Adjustment Method]

1) Allow the unit to go through the threading procedure without a cassette loaded.
2) Set the unit to play back, then turn the eccentric pin so that the tip of tension arm goes to the left side line carved on the mechanical chassis. (Fig. A)
3) After adjustment, go through the loading procedure once more without a cassette loaded, then check the position of the tension arm.

• Tension adjustment

Mode	Playback
Measuring instrument/tool	Torque cassete
Adjustment locations	Position for hooking the tension spring
Specified value	36 to 44 g•cm

[Adjustment Method]

1) Playback the torque cassette.
2) Check that the center value deviation reading on the torque cassette meets with the standards.
3) When the reading is higher than the standards: Move the spring toward direction Ⓐ.
When the reading is less than the standards: Move the spring toward direction Ⓑ.

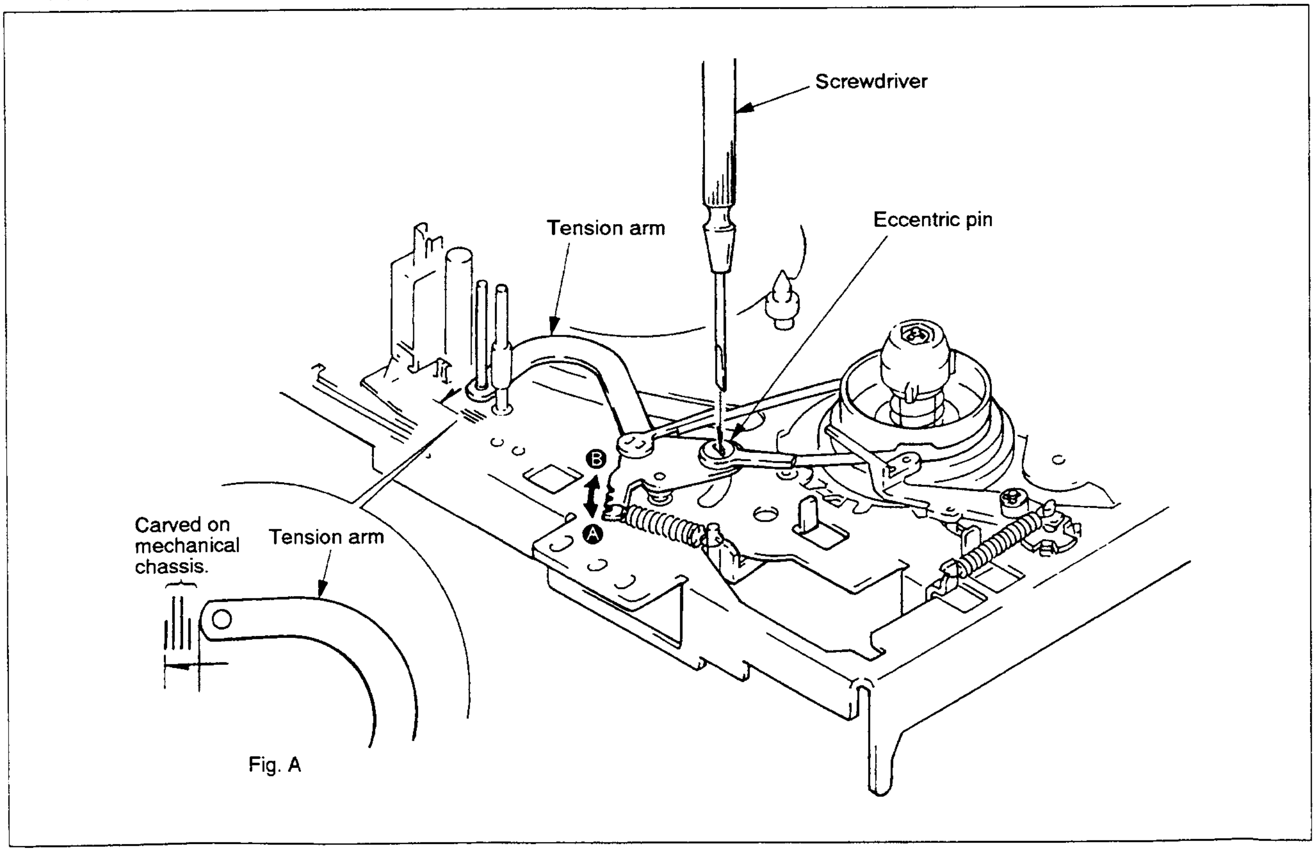


Fig. 4-1

4-1-2. TG8 GUIDE ROLLER HEIGHT ADJUSTMENT (Fig. 4-2)

Mode	Playback
Jig	Blank tape
Adjustment locations	Guide roller height adjustment screw
Specified value	0 to 0.1 mm

Procedure:

1) Set the tape, during CUE playing back, check the height from lower flange of TG7 to the running tape. (Fig. A)
2) During REV playing back, check the height from lower flange of TG7 to the running tape. (Fig. B)
3) When the difference between items 1) and 2) doesn't go to specified value, adjust by turning TG8 guide roller height adjustment screw.
4) Check the tape is creased or not between the capstan and TG8, adjust with TG8 guide roller height adjustment screw so that the tape is not creased during normal playback, CUE and REV.

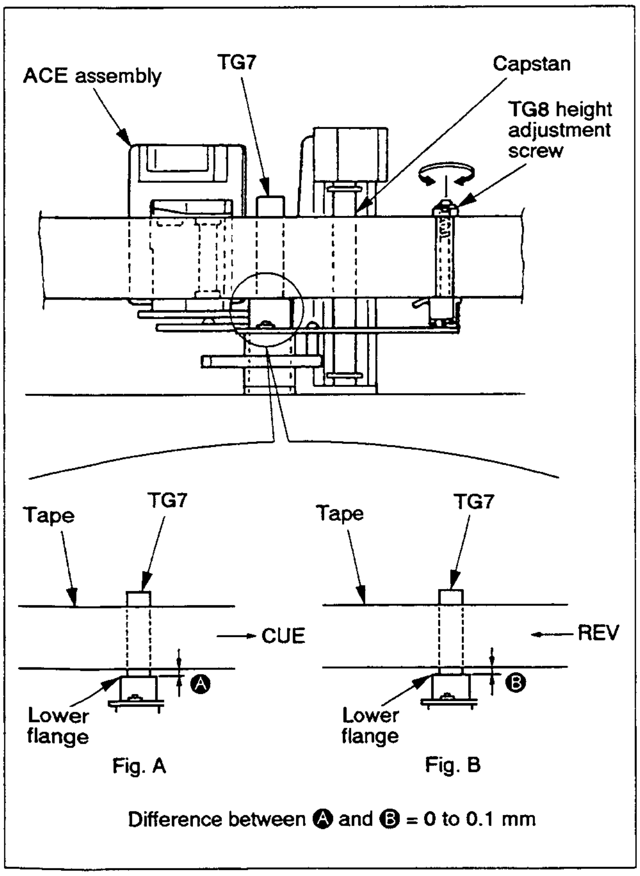

ACE assembly
TG7
Capstan
TG8 height adjustment screw
Tape
TG7
CUE
Ⓐ
Lower flange
Fig. A
Tape
TG7
REV
Ⓑ
Lower flange
Fig. B
Difference between Ⓐ and Ⓑ = 0 to 0.1 mm

Fig. 4-2

4-1-3. HEIGHT ADJUSTMENT OF GUIDE ROLLERS NO. 3 AND NO. 6 (Fig. 4-3)

Mode	Playback
Signal	Alignment tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SW P pin for RF PC board check.
Adjustment locations	Guide roller height adjuster screw

[Adjustment Method]

1) Tracking (playback): Turn off the auto tracking, then press the tracking buttons ▽ and △ simultaneously to set the tracking at the center position.
   (If adjustment is made after the drum is replaced, the tracking must be set at the max. RF output position.)
2) Height adjuster screw: Even out the RF output waveforms.
3) Press the tracking buttons (playback), ▽ and △ alternately.
4) Check that RF output drops the same amount at the front and rear edges.

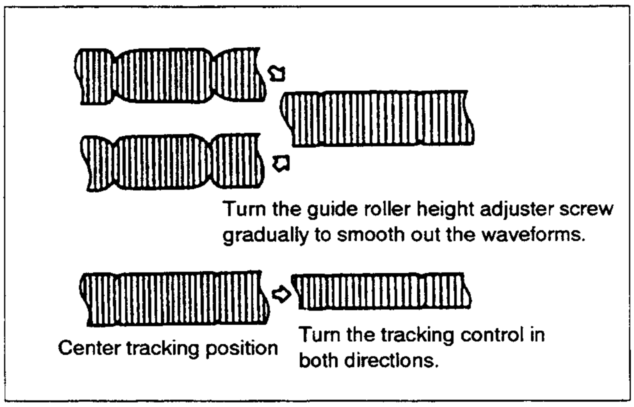

Turn the guide roller height adjuster screw gradually to smooth out the waveforms.
Center tracking position
Turn the tracking control in both directions.

Fig. 4-3

4-1-4. ACE HEAD ASSEMBLY ADJUSTMENT (ROUGH ADJUSTMENT) (Figs. 4-4 and 4-5)

Purpose: Allows the tape to make even contact with the head for recording and playback of the specified track.

Mode	Playback
Tool	Blank tape
Adjustment locations	Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Mount the ACE head assembly. At this time, adjust the height so that the height of guide flange No. 7 matches the level of the lower edge of the control head.
2) Remove the adjustment tool. and load a new tape, then set the unit for playback.
3) Check that the tape does not curl or rise up noticeably near the ACE head.
4) If the tape curls up or rises noticeably, readjust the tilt adjuster screw, the azimuth adjuster screw and the height adjuster nut.
(The height of the ACE head should be adjusted so that the lower edge of the tape is approx. 0.1 to 0.15 mm from the control head.)
5) Perform precision adjustment.

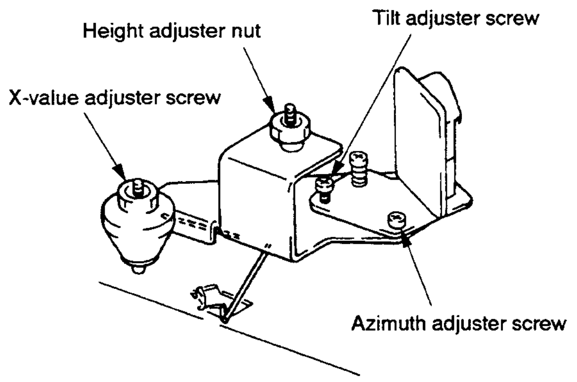

Height adjuster nut
Tilt adjuster screw
X-value adjuster screw
Azimuth adjuster screw

Fig. 4-4

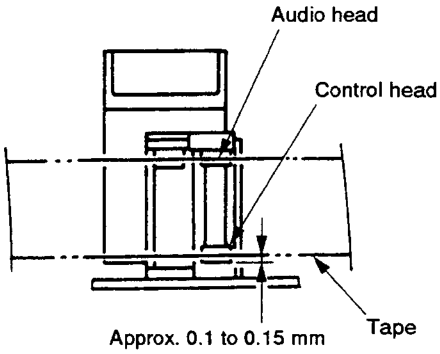

Audio head
Control head
Approx. 0.1 to 0.15 mm
Tape

Fig. 4-5

4-1-5. ACE HEAD ASSEMBLY ADJUSTMENT (PRECISION ADJUSTMENT)

Mode	Playback
Signal	Alignment tape (1kHz track)
Measuring instrument	Oscilloscope
Measuring point	Audio output terminal
Adjustment locations	Azimuth adjuster screw, Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Adjust the tilt adjuster screw in the FWD or REV mode so that the lower flange of guide No. 7 does not curl up or rise.
2) Alternately adjust the azimuth adjuster screw, the height adjuster nut, and the tilt adjuster screw to maintain even audio output at maximum with minimum deviation.

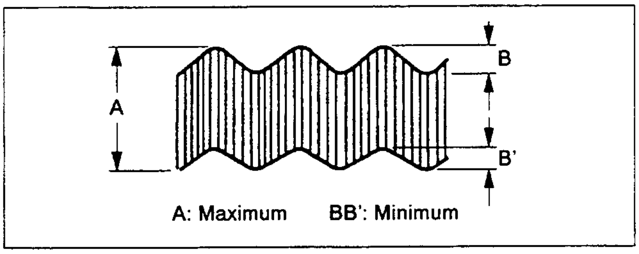

B
A
B'
A: Maximum
BB': Minimum

Fig. 4-6

4-1-6. X-VALUE ADJUSTMENT

Purpose: To obtain compatibility with other VTR

Precaution: Be sure to perform the preset tracking adjustment before perform this adjustment. (Refer to the Service Guide.)
Turn off the auto tracking and set the VTR for manual tracking mode.

Mode	Playback
Signal	Alignment tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SW P pin for RF PC board check.
Adjustment locations	X-value adjuster screw

[Adjustment Method]

- **Adjustment by Hi-Fi alignment tape (NTSC only)**

  When the tracking is set at the center position (by pressing the ▽ and △ keys simultaneously), adjust the RF output to maximum.

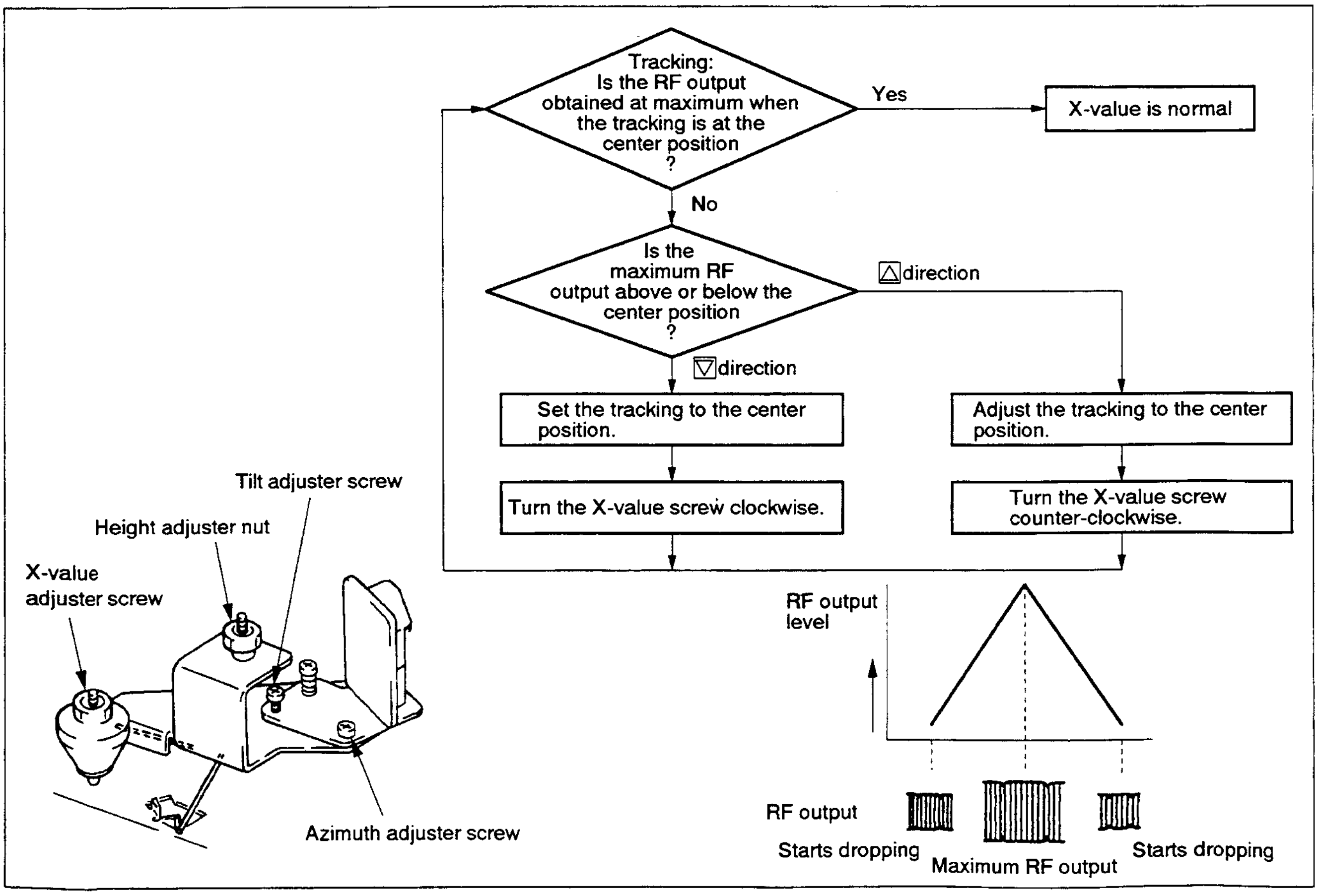

Tracking: Is the RF output obtained at maximum when the tracking is at the center position ?
Yes
X-value is normal
No
Is the maximum RF output above or below the center position ?
△direction
▽direction
Set the tracking to the center position.
Adjust the tracking to the center position.
Turn the X-value screw clockwise.
Turn the X-value screw counter-clockwise.
Tilt adjuster screw
Height adjuster nut
X-value adjuster screw
Azimuth adjuster screw
RF output level
RF output
Starts dropping
Maximum RF output
Starts dropping

Fig. 4-7

- **Adjustment by alignment tape**

  Adjust the X-value adjuster screw so that maximum RF output is obtained and also that the RF output drops to the same position on pressing the respective ▽ and △ buttons while the tracking is set at the center position.

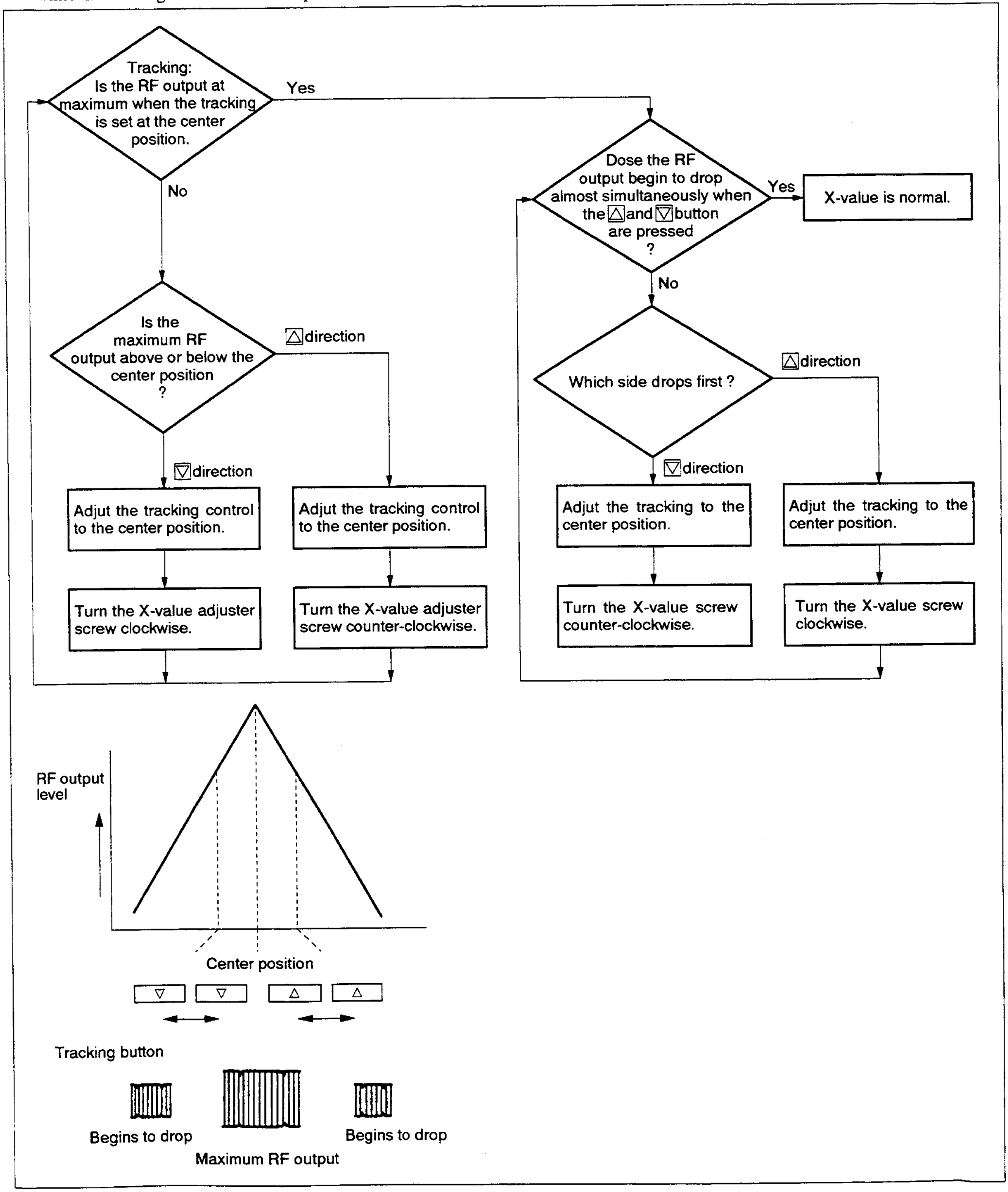

Tracking: Is the RF output at maximum when the tracking is set at the center position.
Yes
No
Is the maximum RF output above or below the center position ?
△direction
▽direction
Adjust the tracking control to the center position.
Turn the X-value adjuster screw clockwise.
Adjust the tracking control to the center position.
Turn the X-value adjuster screw counter-clockwise.
Dose the RF output begin to drop almost simultaneously when the △and▽button are pressed ?
Yes
X-value is normal.
No
Which side drops first ?
△direction
▽direction
Adjust the tracking to the center position.
Turn the X-value screw counter-clockwise.
Adjust the tracking to the center position.
Turn the X-value screw clockwise.
RF output level
Center position
▽
▽
△
△
Tracking button
Begins to drop
Maximum RF output
Begins to drop

Fig. 4-8

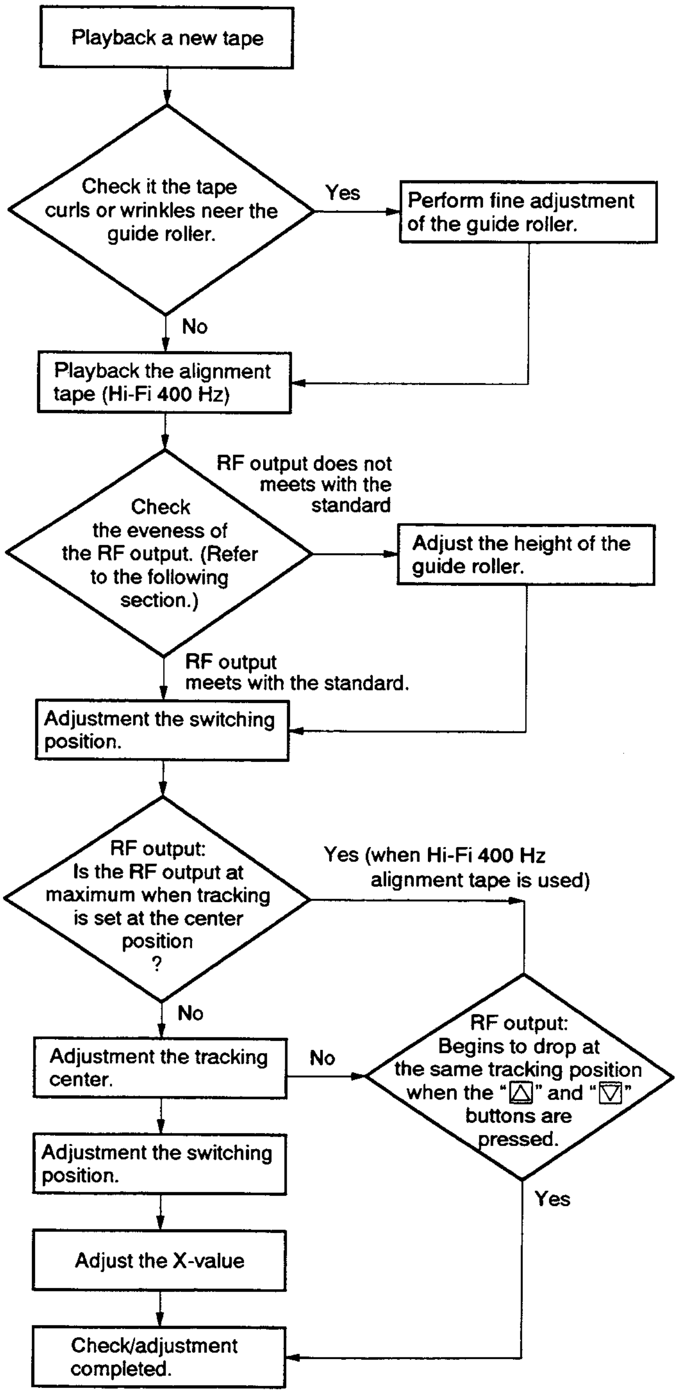
4-1-7. ADJUSTMENTS AFTER REPLACING THE DRUM (VIDEO HEAD)

Purpose: Co-relative height, X-value and other factors of the drum will deviate from those of the guide roller. If the drum is replaced properly, these deviations are extremely small.

Precaution: Turn off the auto tracking and set the manual tracking mode.

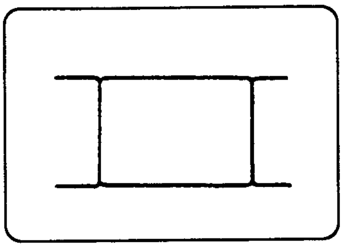
Mode	Playback
Signal	Alignment tape, blank tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SW P pin for RF PC board check.
Adjustment locations	Guide roller (refer to 4-1-2, 4-1-3.) Switching position, Tracking preset, SP delay mono-multi (Refer to the Service Manual), X-value. (refer to 4-1-6.)

[Adjustment Method]

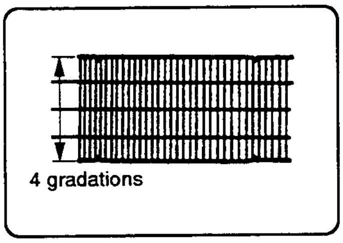

Playback a new tape
Check it the tape curls or wrinkles neer the guide roller.
Yes
Perform fine adjustment of the guide roller.
No
Playback the alignment tape (Hi-Fi 400 Hz)
RF output does not meets with the standard
Check the eveness of the RF output. (Refer to the following section.)
Adjust the height of the guide roller.
RF output meets with the standard.
Adjustment the switching position.
RF output: Is the RF output at maximum when tracking is set at the center position ?
Yes (when Hi-Fi 400 Hz alignment tape is used)
No
Adjustment the tracking center.
No
RF output: Begins to drop at the same tracking position when the "△" and "▽" buttons are pressed.
Yes
Adjustment the switching position.
Adjust the X-value
Check/adjustment completed.

[Checking the evenness and fluctuation of the RF output]

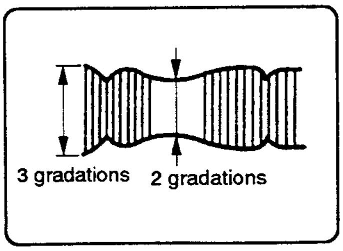
1) Set the RF output to the maximum level using the tracking buttons.



2) Perform fine adjustment of the voltage level range of the oscilloscope, then adjust the RF output deviation to within 4 gradations.



3) Press the tracking buttons and adjust the maximum amplitude of the RF output to within 3 gradations.
4) At this time, check if the minimum amplitude is more than 2 gradations.



5) Check that the RF output fluctuation between minimum and maximum levels is within 13%.

4-1-8. CHECKING THE TENSION AND TORQUE

Purpose: To check that the tension, torque and compression force of the tape take-up section and mobile sections to ensure smooth tape run and achieve standard VTR performance.

If the tape transport is not smooth or problems occur in relation to the tape transport speed, perform the following check.

Mode	Each operation mode without loading a cassette tape. (Refer to section 1-3.)
Measuring instrument	Torque gauge, Torque gauge adaptor

Item	VTR operation mode	Reel to be measured	Measurement value
Main brake torque	Stop	Supply and take-up reels	170 g•cm or more
Review torque	Review	Supply reel	180 ± 30 g•cm (using the torque cassette)
Take-up torque	Playback	Take-up reel	95 ± 25 g•cm (using the torque cassette)
Back tension torque	Playback	Take-up reel	33 to 44 g•cm (using the torque cassette)

[Check Method]

Measure the torque using the torque gauge and torque gauge adaptor with the torque gauge fixed.

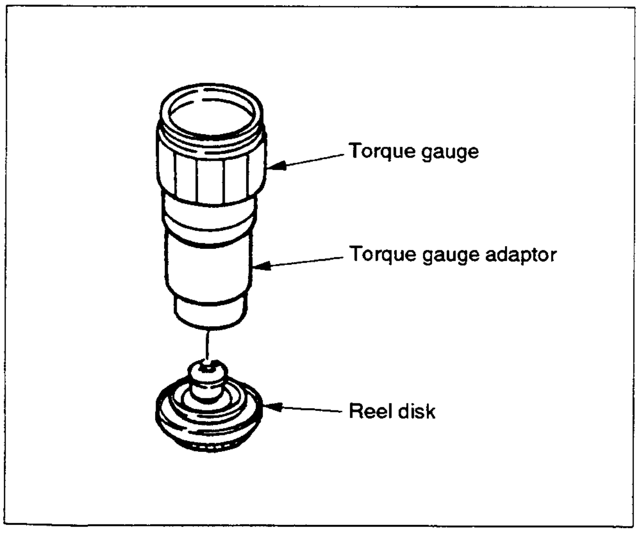


Fig. 4-9

V03056

VHS MECHANICAL ADJUSTMENT MANUAL IV

SONY®

SERVICE MANUAL

H MECHANISM

SUPPLEMENT-1

1. **How to Use the Mode Selector Ⅱ for Adjusting H Type Mechanism Assembly.**
2. **Adjusting Mechanism Using New Alignment Tape (KRV-52NE For NTSC).**

File this supplement with the VHS mechanical adjustment Ⅳ.

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MICROFILM

1. HOW TO USE THE MODE SELECTOR II FOR ADJUSTING H TYPE MECHANISM ASSEMBLY

1-1. OUTLINE

To activate the VHS system H type mechanism assembly using mode selector II (J-6082-282-A), use connector conversion jig (J-6090-052-A). By using the connector conversion jig, the following operations are possible.

- Loading and unloading action by the loading motor
- Reading of the current setting of the mode switch
- Normal and reverse rotation of the capstan motor

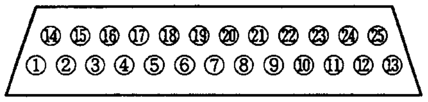
1-2. PREPARATION

1-2-1. ADDITION OF POWER SUPPLY CABLE (Already added Mode Selector II also available)

In order to drive the capstan motor, the power +5 V and +12 V are supplied from the Mode Selector II. Disassemble the D-SUB connector of the Mode Selector cable, then solder the following three places.

Supplied 3-pin cable	DSUB connector of the mode selector II	Voltage
Pin 1 (Red index)	Pin 20	+12 V
Pin 2	Pin 25	GND
Pin 3	Pin 24	+5 V

- Connector pin number assignment of the DSUB connector (From the soldering side)



- When connections are made, check that +5 V and +12 V are available at the 3-pin cable connector.

1-2-2. CHECKING THE SOFTWARE VERSION

Turn on the power of the mode selector II.

If the reading for the software version on the mode selector II is not 1.10 or higher, replace the New ROM (J-6082-314-A).

1-3. CONNECTION

1-3-1. CONNECTION BETWEEN THE CONNECTOR CONVERSION JIG AND THE MODE SELECTOR II (See Fig. 1-1)

Insert the connectors of the two 6-pin cables (one is white and the other is black) and the 3-pin cable from the mode selector II to the corresponding connectors on the connector conversion jig (J-6090-052-A).

1-3-2. CONNECTION BETWEEN THE CONNECTOR CONVERSION JIG AND THE H TYPE MECHANISM ASSEMBLY

With the power of the mode selector II turned off, insert the following three connectors to the corresponding connectors on the H type mechanism assembly.

- 3-pin connector for the loading motor
- 5-pin connector for the mode switch
- 8-pin connector for the capstan motor

Set the speed control for the minimum setting (fully counterclockwise).

1-4. OPERATION

1-4-1. OPERATION OF THE LOADING MOTOR ON THE H TYPE MECHANISM ASSEMBLY

(1) Select the H type mechanism assembly setting on the mode selector II .

(2) After this, procedures are the same as those for the previous model types.
For the operating method, see pages 3 to 5 of "8 mm Video Mechanism Manual VI (TK Mechanism) Supplement-1".
For the loading method, see page 3 of "VHS Mechanical Adjustment Manual IV (H Mechanism)".

1-4-2. OPERATION OF THE CAPSTAN MOTOR ON THE H TYPE MECHANISM ASSEMBLY

(1) For the loading motor operation under Section 1-4-1, change the mode setting to the FF/REW mode with the mode switch.

(2) Turn the speed control gradually in clockwise direction, and the capstan motor starts rotating. To turn the capstan motor in desired rotating direction, change the FWD/RVS setting of the rotating direction switch.

1-5. PRECAUTIONS

- Turn the speed control only when necessary. Otherwise, hold the speed control turned at fully counterclockwise direction. If the power of the mode selector II is turned on with the speed control turned in clockwise direction, +12V power fails and the power of the mode selector II cannot be turned on.
- Although the connector conversion jig (J-6090-052-A) has rubber feet, do not make a short circuit on the bottom surface of the connector conversion jig via foreign conductive materials.

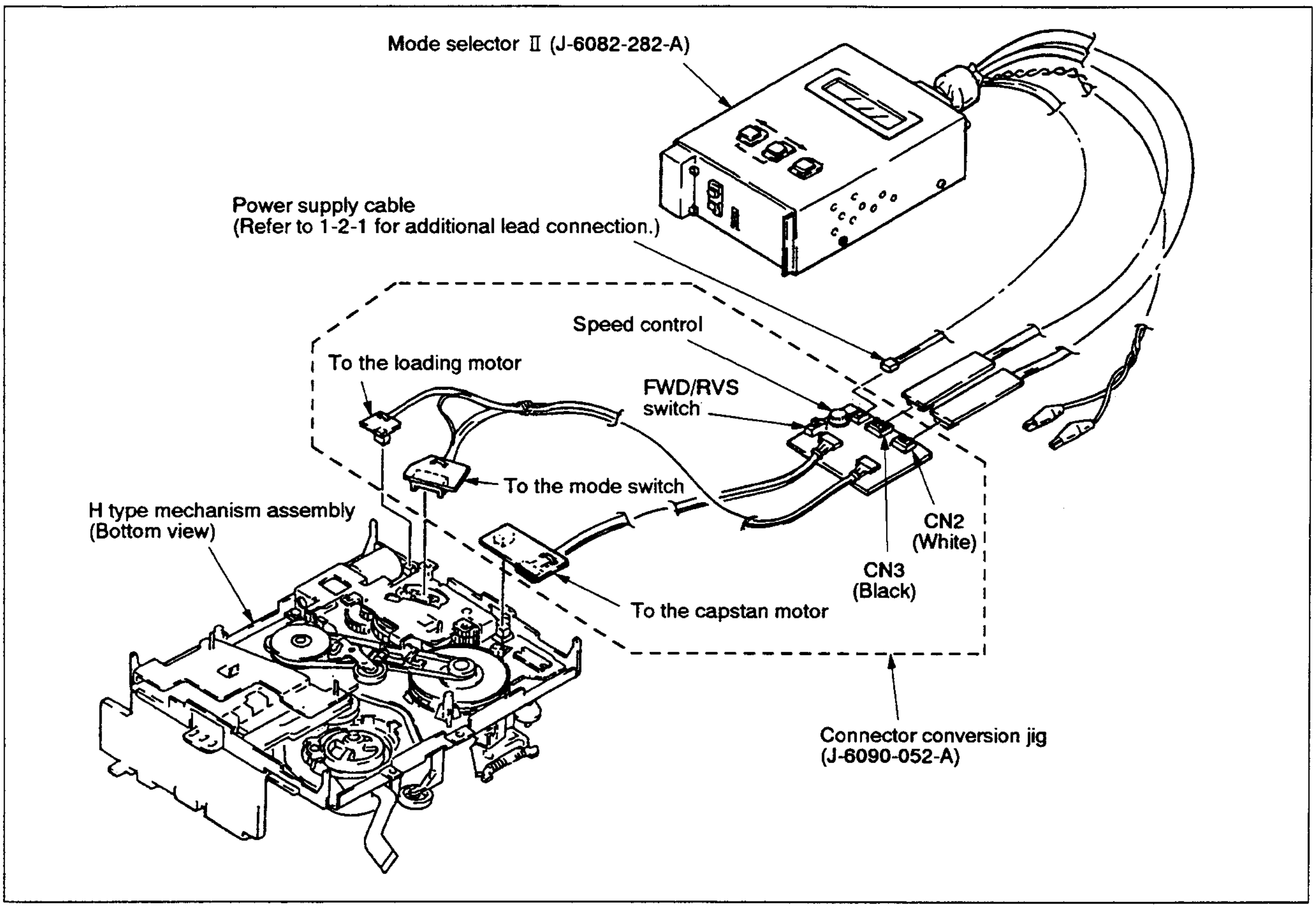

Mode selector Ⅱ (J-6082-282-A)
Power supply cable
(Refer to 1-2-1 for additional lead connection.)
Speed control
To the loading motor
FWD/RVS switch
To the mode switch
H type mechanism assembly
(Bottom view)
CN2
(White)
CN3
(Black)
To the capstan motor
Connector conversion jig
(J-6090-052-A)

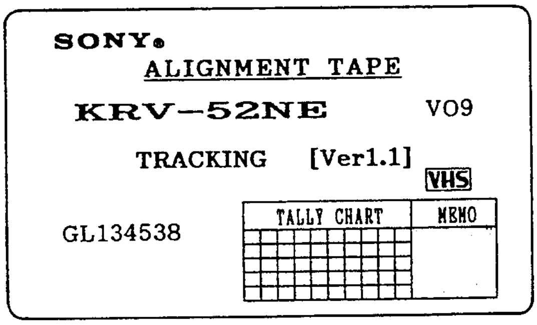
Fig. 1-1

2. ADJUSTING THE MECHANISM USING NEW ALIGNMENT TAPE (KRV-52NE for NTSC)

The conventional alignment tape (For NTSC) is now replaced with alignment tape KRV-52NE, and the following describes how to align the mechanism using the KRV-52NE. For details on the use of KRV-51N2 for each model, refer to the service manuals which will be issued in the future.

Name	Parts No.	Remarks
Alignment tape KRV-52NE for NTSC	8-192-605-41	For tape path, audio azimuth, and X-value adjustments
Alignment tape KRV-51N2 for NTSC	8-192-605-32	For electrical adjustments (RF, AF, and switching position) and operation check

Note: The KRV-52NE has or does not have Ver No. depending on new or old type as shown below. (New one has Ver No.)
Note that an adjusting method of X-value is different.



SONY®
ALIGNMENT TAPE
KRV—52NE V09
TRACKING [Ver1.1]
VHS
GL134538
TALLY CHART MEMO

Contents:
KRV-52NE (NTSC)

Time	Video	Audio
20 min.	Recording only at 1 MHz, A-ch. EP mode RF skipping once per 5 frames	5 kHz full tracks

KRV-51N2 (NTSC)

Class	Mode	Time	Video	Audio (HiFi/Normal)
1	SP	7 min.	Color bar	400 Hz
2	SP	3 min.	Mono. scope	400 Hz
3	EP	7 min.	Color bar	400 Hz
4	EP	3 min.	Mono. scope	400 Hz

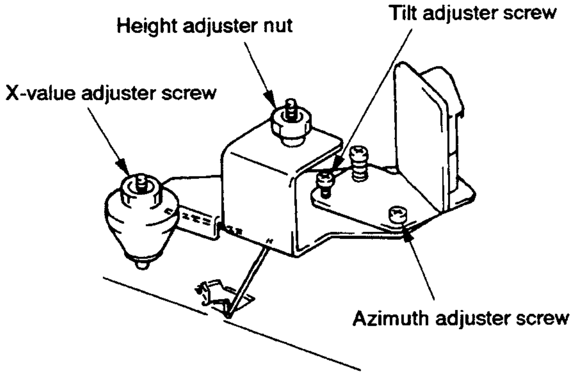
2-1. ADJUSTMENT USING ALIGNMENT TAPE (KRV-52NE for NTSC having no version No.)

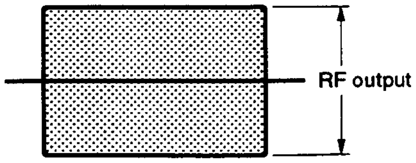
2-1-1. X-VALUE ADJUSTMENT (Using the tape having no version No.)

Purpose: To obtain compatibility with other VCRs.

Precaution: Before starting to adjust X-value, set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC having no version No.)
Measuring instrument	Oscilloscope TIM/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH-1: Connector PB RF pin for RF PC board check CH-2: Connector RF SWP pin for RF PC board check
Adjustment locations	X-value adjuster screw

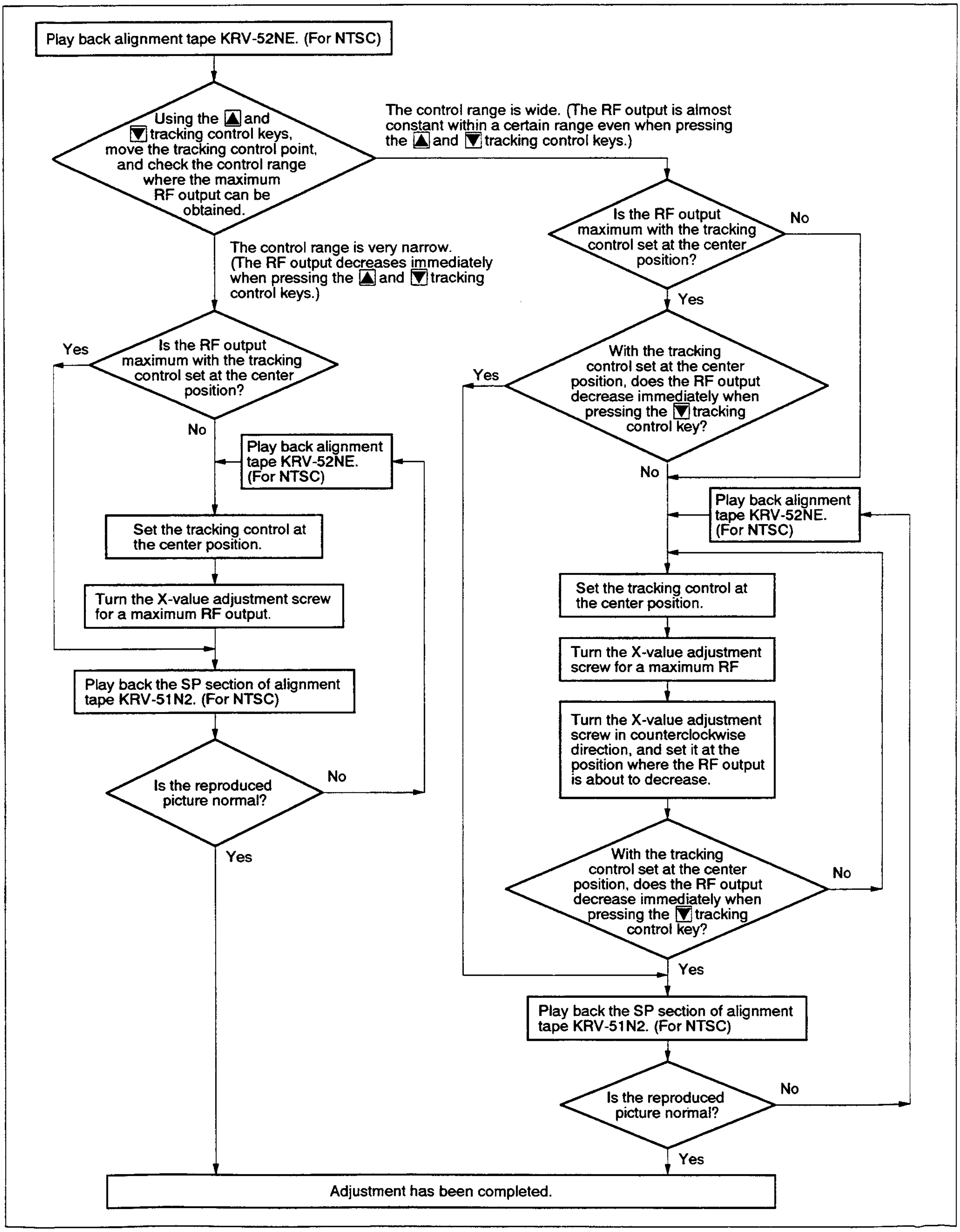




RF output shall be maximum at the center position of the tracking control.

[Adjustment Method]
Set the tracking control at the center position. For the VCRs equipped with narrow gap video heads, set the X-value adjustment screw where a maximum RF output is obtained. For the VCRs equipped with wide gap video heads, set the X-value adjustment screw both where a maximum RF output is obtained and where the RF output decreases immediately when the ▼ tracking control key is pressed.

X-VALUE ADJUSTMENT (Using the tape having no version No.)


Play back alignment tape KRV-52NE. (For NTSC)
Using the ▲ and ▼ tracking control keys, move the tracking control point, and check the control range where the maximum RF output can be obtained.
The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Play back alignment tape KRV-52NE. (For NTSC)
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF output.
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Is the reproduced picture normal?
No
Yes
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
No
Play back alignment tape KRV-52NE. (For NTSC)
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF
Turn the X-value adjustment screw in counterclockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
No
Yes
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Is the reproduced picture normal?
No
Yes
Adjustment has been completed.

When adjustment is complete, adjust the height of No. 3 and No. 6 guide rollers on page 10.

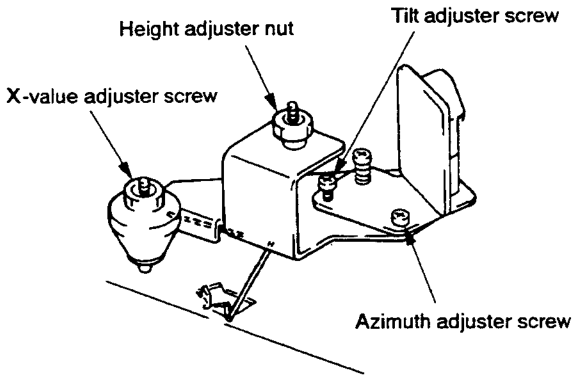
2-2. ADJUSTMENT USING ALIGNMENT TAPE (KRV-52NE for NTSC having the version No.)

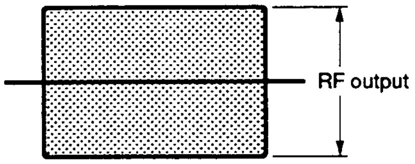
2-2-1. X-VALUE ADJUSTMENT (Using the tape having the version No.)

Purpose: To obtain compatibility with other VCRs.

Precaution: Before starting to adjust X-value, set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC having the version No.)
Measuring instrument	Oscilloscope TIM/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH-1: Connector PB RF pin for RF PC board check CH-2: Connector RF SWP pin for RF PC board check
Adjustment locations	X-value adjuster screw

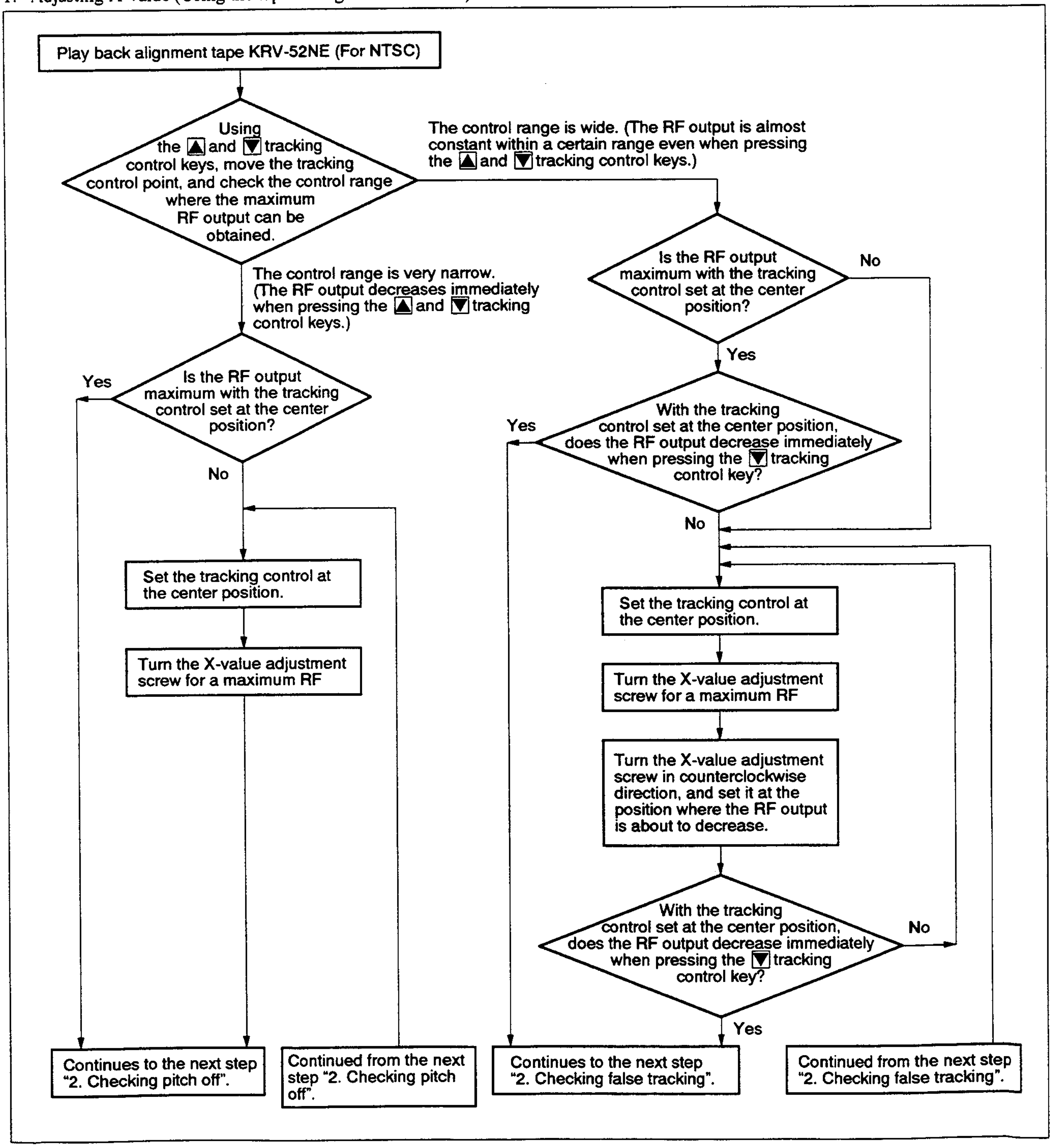




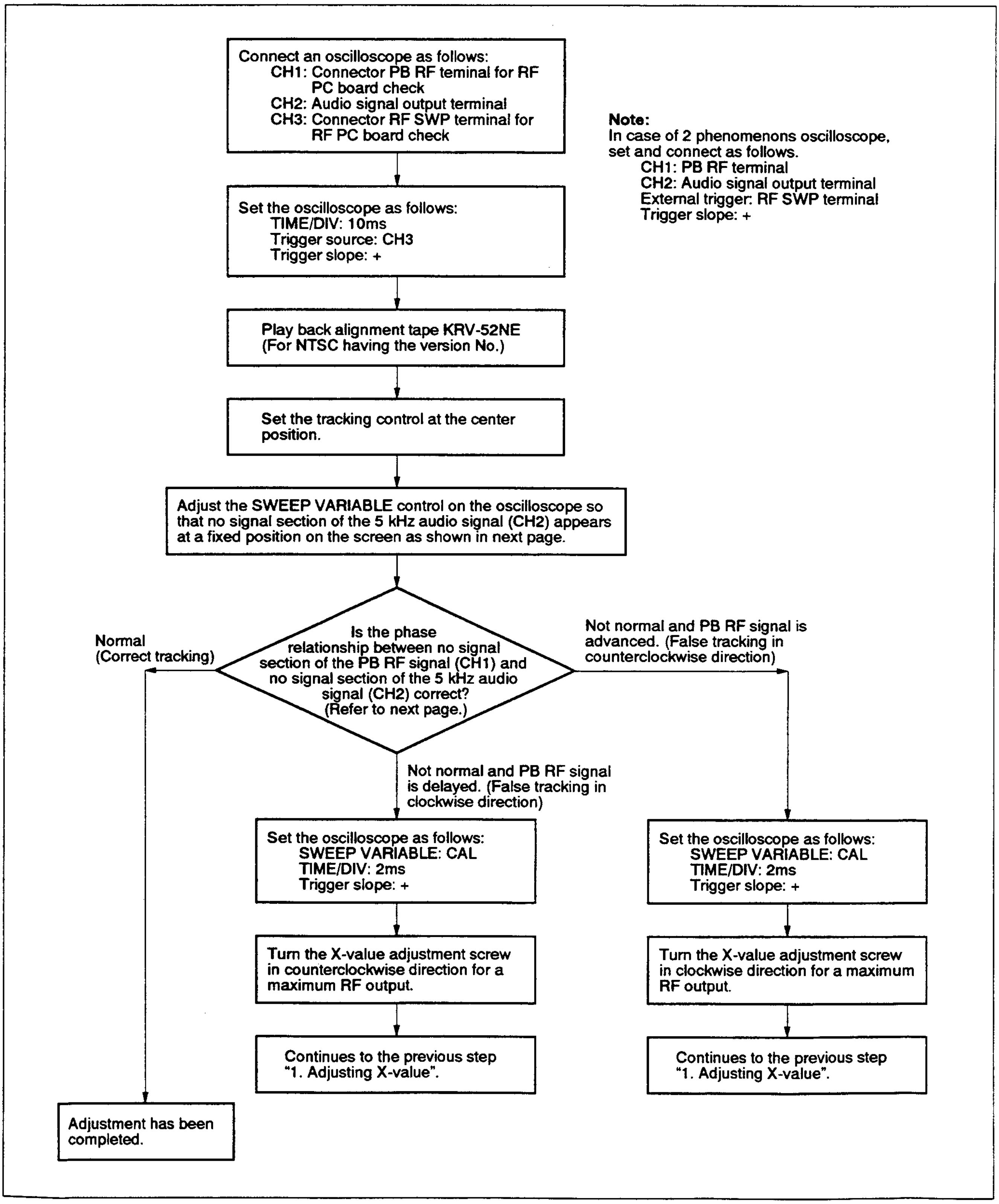
RF output shall be maximum at the center position of the tracking control.

[Adjustment Method]
Set the tracking control at the center position. For the VCRs equipped with narrow gap video heads, set the X-value adjustment screw where a maximum RF output is obtained. For the VCRs equipped with wide gap video heads, set the X-value adjustment screw both where a maximum RF output is obtained and where the RF output decreases immediately when the ▼ tracking control key is pressed.

1. Adjusting X-value (Using the tape having the version No.)


Play back alignment tape KRV-52NE (For NTSC)
Using the ▲ and ▼ tracking control keys, move the tracking control point, and check the control range where the maximum RF output can be obtained.
The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
No
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF
Turn the X-value adjustment screw in counterclockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
No
Yes
Continues to the next step "2. Checking pitch off".
Continued from the next step "2. Checking pitch off".
Continues to the next step "2. Checking false tracking".
Continued from the next step "2. Checking false tracking".

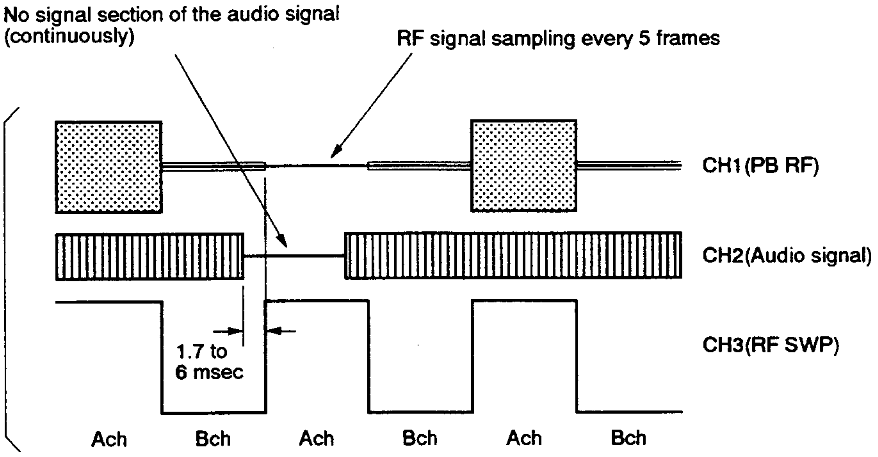
2. Checking false tracking (Using the tape having the version No.)


Connect an oscilloscope as follows:
CH1: Connector PB RF teminal for RF PC board check
CH2: Audio signal output terminal
CH3: Connector RF SWP terminal for RF PC board check
Set the oscilloscope as follows:
TIME/DIV: 10ms
Trigger source: CH3
Trigger slope: +
Play back alignment tape KRV-52NE (For NTSC having the version No.)
Set the tracking control at the center position.
Adjust the SWEEP VARIABLE control on the oscilloscope so that no signal section of the 5 kHz audio signal (CH2) appears at a fixed position on the screen as shown in next page.
Is the phase relationship between no signal section of the PB RF signal (CH1) and no signal section of the 5 kHz audio signal (CH2) correct? (Refer to next page.)
Normal (Correct tracking)
Not normal and PB RF signal is advanced. (False tracking in counterclockwise direction)
Not normal and PB RF signal is delayed. (False tracking in clockwise direction)
Set the oscilloscope as follows:
SWEEP VARIABLE: CAL
TIME/DIV: 2ms
Trigger slope: +
Turn the X-value adjustment screw in counterclockwise direction for a maximum RF output.
Continues to the previous step "1. Adjusting X-value".
Set the oscilloscope as follows:
SWEEP VARIABLE: CAL
TIME/DIV: 2ms
Trigger slope: +
Turn the X-value adjustment screw in clockwise direction for a maximum RF output.
Continues to the previous step "1. Adjusting X-value".
Adjustment has been completed.

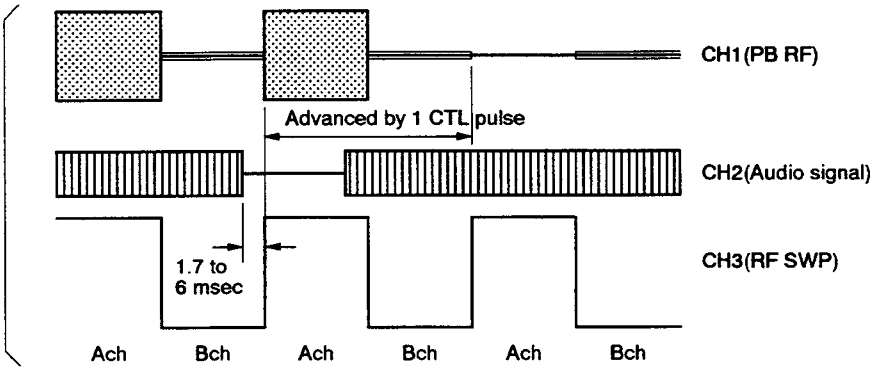
Note:
In case of 2 phenomenons oscilloscope, set and connect as follows.
CH1: PB RF terminal
CH2: Audio signal output terminal
External trigger: RF SWP terminal
Trigger slope: +

Using the tape having the version No.

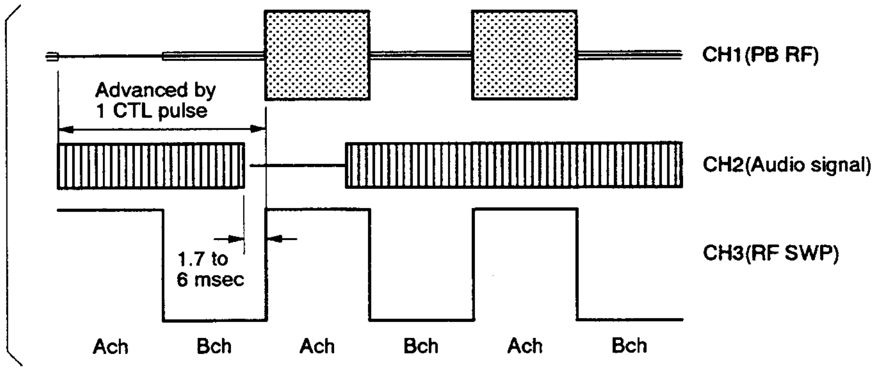
Normal tracking


No signal section of the audio signal (continuously)
RF signal sampling every 5 frames
CH1 (PB RF)
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch

False tracking delayed by 1 CTL pulse (in clockwise direction)


CH1 (PB RF)
Advanced by 1 CTL pulse
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch

False tracking advanced by 1 CTL pulse (in counterclockwise direction)


CH1 (PB RF)
Advanced by 1 CTL pulse
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch

2-3. ADJUSTING THE MECHANISM USING ALIGNMENT TAPE (KRV-52NE for NTSC)

2-3-1. HEIGHT ADJUSTMENT OF GUIDE ROLLERS NO. 3 AND NO. 6

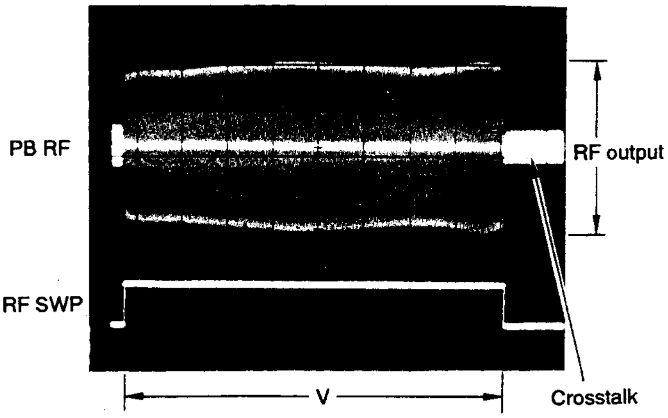
Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC)
Measuring instrument	Oscilloscope TIM/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH-1: Connector PB RF pin for RF PC board check CH-2: Connector RF SWP pin for RF PC board check
Adjustment locations	Height adjustment screw for No.3 tape guide roller Height adjustment screw for No.6 tape guide roller

[Adjustment Method]

The following adjustment shall be carried out after completed Section 2-1-1 "X-value adjustment and check".

1) Deactivate the automatic tracking control, and set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

2) Check if the RF output changes in amplitude by pressing the tracking control key. The RF output should change periodically (changes from a minimum amplitude to a maximum amplitude, and to the minimum amplitude again).

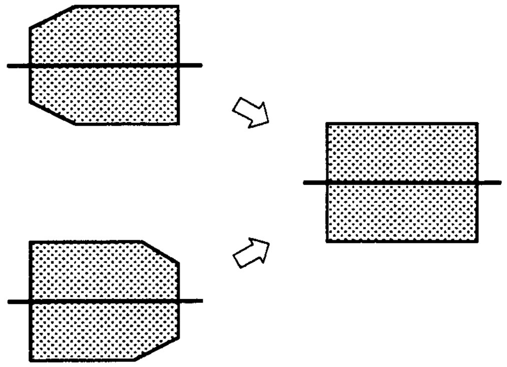


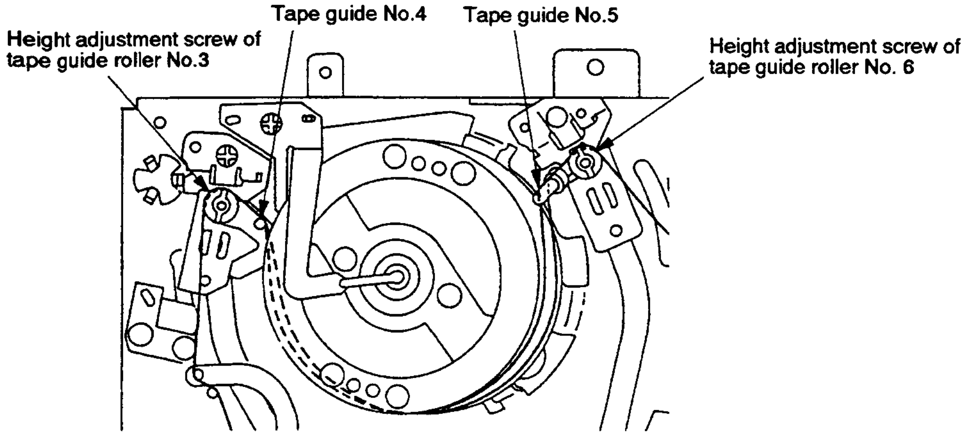
3) Turn the height adjustment screws of tape guide rollers No.3 and No.6 so that the RF output envelope becomes as flat as possible.

4) Press the ▲ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.

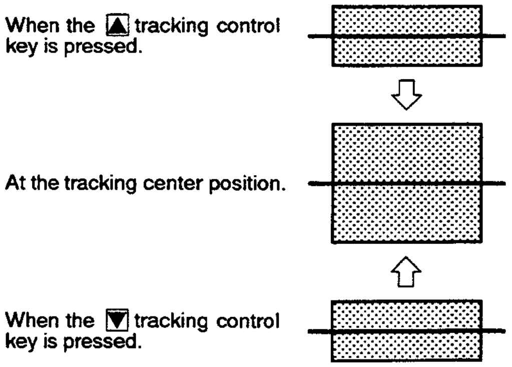
5) Press the ▼ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.

Turn the height adjustment screws of tape guide rollers No.3 and No.6 little by little so that the RF output envelope becomes as flat as possible.




Tape guide No.4
Tape guide No.5
Height adjustment screw of tape guide roller No.3
Height adjustment screw of tape guide roller No. 6

Press the ▼ tracking control key, then the ▼ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.


When the ▲ tracking control key is pressed.
At the tracking center position.
When the ▼ tracking control key is pressed.

2-3-2. ACE HEAD ASSEMBLY ADJUSTMENT (ROUGH ADJUSTMENT) (Figs. 2-1 and 2-2)

Purpose: Allows the tape to make even contact with the head for recording and playback of the specified track.

Mode	Playback
Jig	Blank tape
Adjustment locations	Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Mount the ACE head assembly. At this time, adjust the height so that the height of guide flange No. 7 matches the level of the lower edge of the control head.
2) Remove the adjustment tool and load a new tape, then set the unit for playback.
3) Check that the tape does not curl or rise up noticeably near the ACE head.
4) If the tape curls up or rises noticeably, readjust the tilt adjuster screw and the height adjuster nut.
   (The height of the ACE head should be adjusted so that the lower edge of the tape is approx. 0.1 to 0.15 mm from the control head.)
5) Perform precision adjustment.

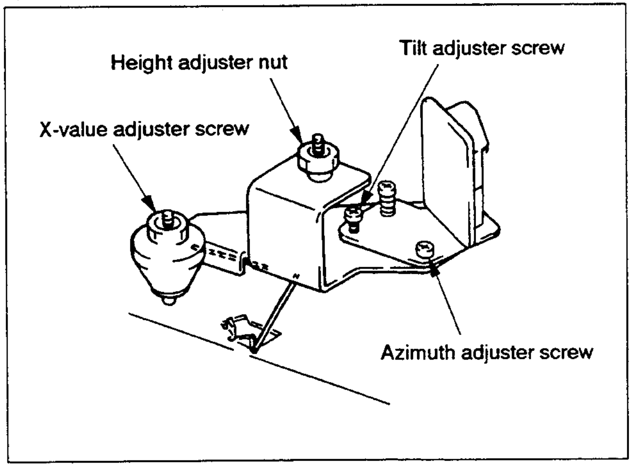


Fig. 2-1

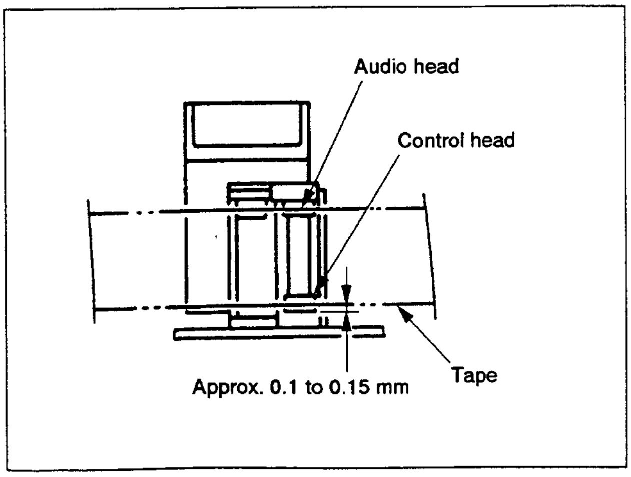


Fig. 2-2

2-3-3. ACE HEAD ASSEMBLY ADJUSTMENT (PRECISION ADJUSTMENT)

Mode	Playback
Signal	Alignment tape (KRV-52NE 5 kHz) (For NTSC)
Measuring instrument	Oscilloscope
Measuring point	Audio output terminal
Adjustment locations	Azimuth adjuster screw, Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Adjust the tilt adjuster screw in the FWD or REV mode so that the lower flange of guide No. 7 does not curl up or rise.
2) Alternately adjust the azimuth adjuster screw, the height adjuster nut, and the tilt adjuster screw to maintain even audio output at maximum with minimum deviation.

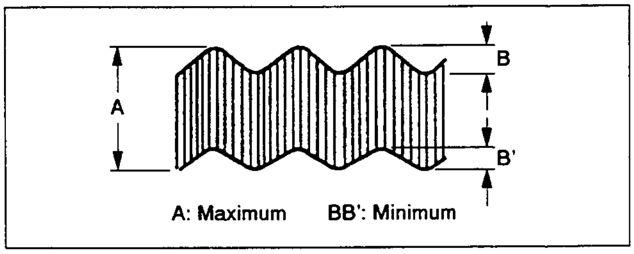


Fig. 2-3

2-3-4. ADJUSTMENTS AFTER REPLACING THE DRUM (VIDEO HEAD)

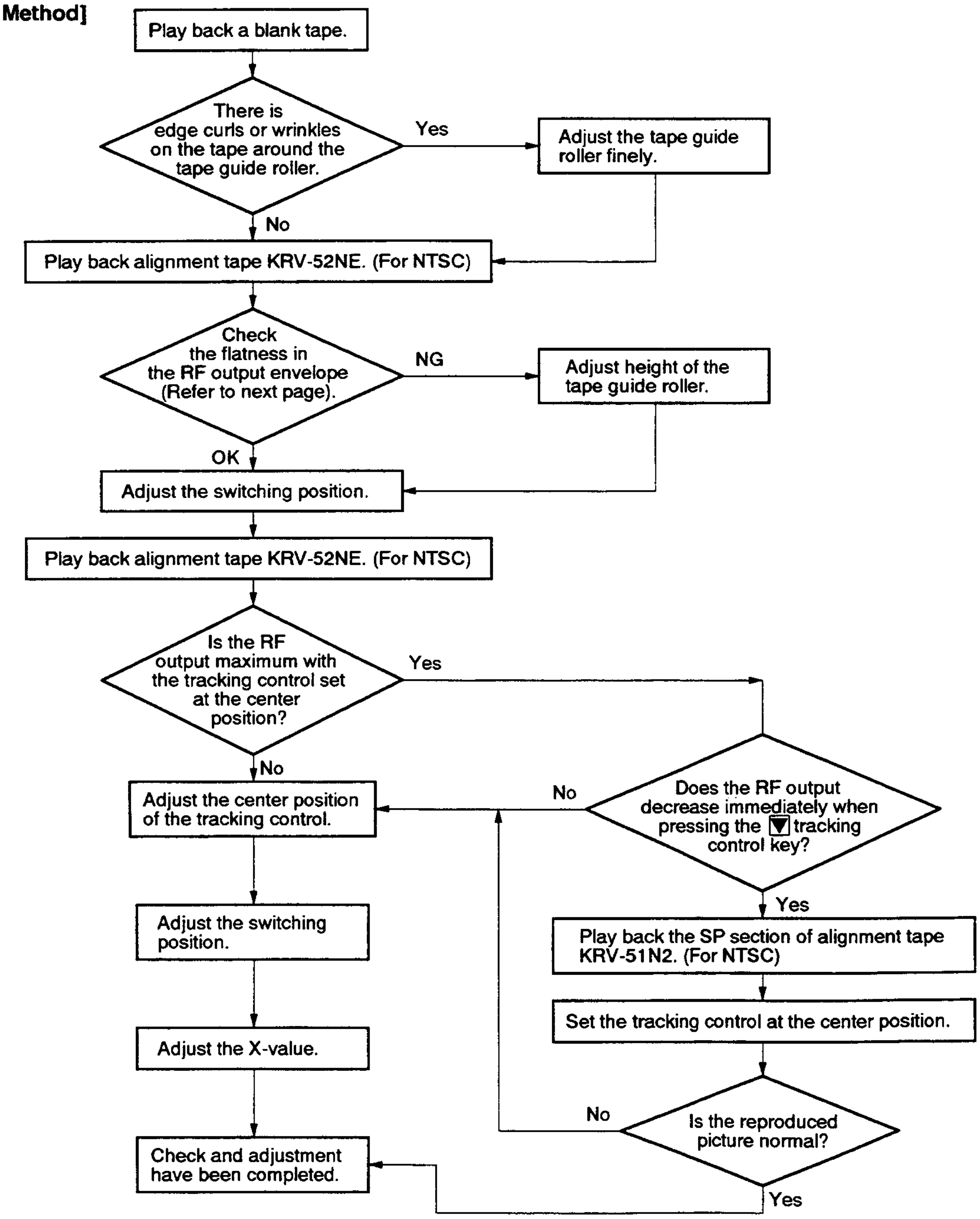
Purpose: Co-relative height, X-value and other factors of the drum will deviate from those of the guide roller. If the drum is replaced properly, these deviations are extremely small.

Note 1: Deactivate the automatic tracking control for setting the mechanism in manual tracking control mode.

Note 2: To set the tracking control at the center position, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

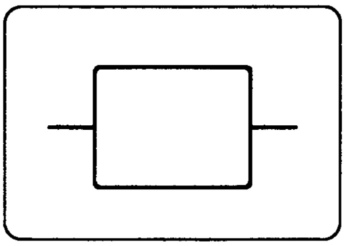
Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC), blank tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SWP pin for RF PC board check.
Adjustment locations	Guide roller (Refer to 2-3-1.) Switching position (Refer to the Service Manual) X-value (Refer to 2-1-1, 2-1-2.)

[Adjustment Method]

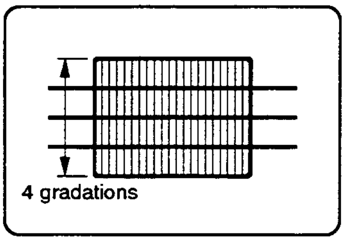

Play back a blank tape.
There is edge curls or wrinkles on the tape around the tape guide roller.
Yes
Adjust the tape guide roller finely.
No
Play back alignment tape KRV-52NE. (For NTSC)
Check the flatness in the RF output envelope (Refer to next page).
NG
Adjust height of the tape guide roller.
OK
Adjust the switching position.
Play back alignment tape KRV-52NE. (For NTSC)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Adjust the center position of the tracking control.
No
Does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Adjust the switching position.
Set the tracking control at the center position.
Adjust the X-value.
No
Is the reproduced picture normal?
Check and adjustment have been completed.
Yes

[Checking the evenness and fluctuation of the RF output]

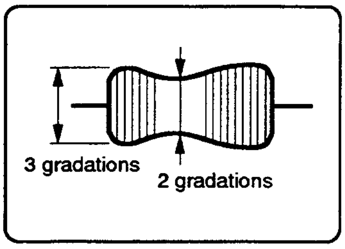
1) Set the RF output to the maximum level using the tracking buttons.



2) Perform fine adjustment of the voltage level range of the oscilloscope, then adjust the RF output deviation to within 4 gradations.



3) Press the tracking buttons and adjust the maximum amplitude of the RF output to within 3 gradations.
4) At this time, check if the minimum amplitude is more than 2 gradations.



5) Check that the RF output fluctuation between minimum and maximum levels is within 13%.

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VHS MECHANICAL ADJUSTMENT MANUAL IV

SONY®
SERVICE MANUAL

H MECHANISM

SUPPLEMENT-2

File this supplement with the VHS mechanical adjustment IV and supplement-1.

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1. CORRECTION

In the VHS Mechanism Adjustment Manual IV (Supplement-1), an adjustment sequence was wrong, and it is corrected as follow;

1-1. Adjustment Sequence (VHS Mechanism Adjustment Manual IV (Supplement-1) Page 6 to 1 1)

(1) Adjustment of No. 3 and No. 6 guide roller height
Delete the "The following adjustment shall be carried out after completed Section 2-1-1 "X-value adjustment and check" under "Adjustment Method" on page 10.

(2) Adjustment of ACE head assembly

Note: In the adjustment of ACE head assembly (coarse adjustment and fine adjustment), if a azimuth, height and tilt were adjusted, again adjust the height of No. 3 and No. 6 guide rollers.

(3) Adjustment of X value

MICROFILM

2. MODIFICATION

2-1. CHANGING THE RECORDED CONTENTS OF ALIGNMENT TAPE

KRV-52NE (NTSC) (Ver. 1.2)

Time	Video	Audio
20 min.	Recording only at 1 MHz, A-ch. EP mode RF skipping once per 5 frames	5 kHz → 4 kHz full tracks

2-2. TG2 ROLLER, FE HEAD ASSEMBLY (Refer to VHS Mechanical Adjustment Manual IV page14)

- The TG2 roller is provided with either of two types, fixed or straight. For the fixed type, section 3-5 is added.

3-5. TG2 ROLLER, FE HEAD ASSEMBLY (Fig. 3-5)

1) Remove screw ① to pull out FE head assembly ②.

[Note on Mounting]

- Keep clean the surface contacts tape of TG2 roller.

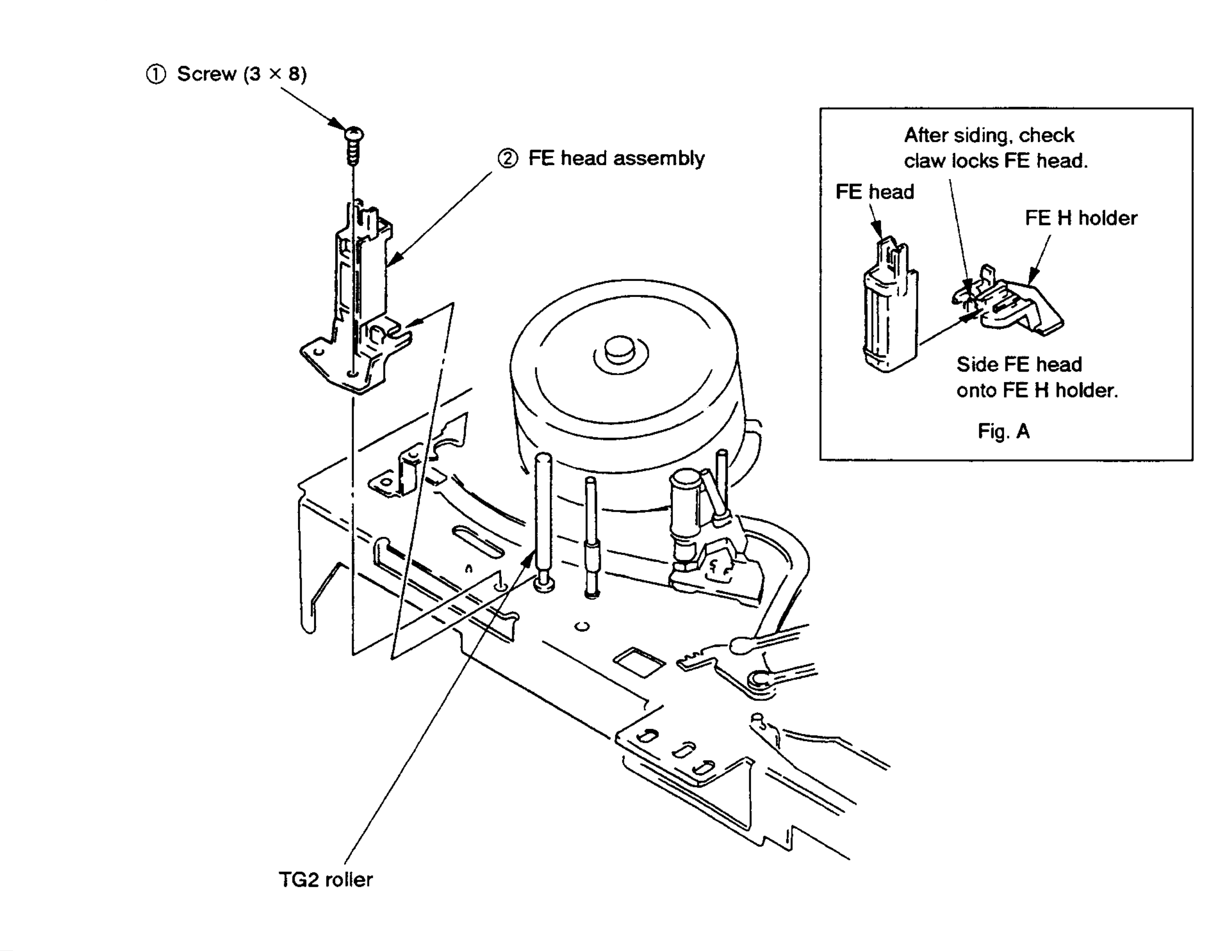
① Screw (3 × 8)
② FE head assembly
TG2 roller
After siding, check claw locks FE head.
FE head
FE H holder
Side FE head onto FE H holder.
Fig. A

Fig. 3-5

2-3. TG3, TG6 GUIDE ROLLER ASSEMBLIES (Refer to VHS Mechanical Adjustment Manual IV page 17)

- There is another type in TG3 and TG6 guide roller assemblies, which is not attached with a screw (B2X3). For the screwless type, section 3-8 is added.

3-8. TG3, TG6 GUIDE ROLLER ASSEMBLIES (Fig. 3-8)

1) TG3 guide roller assembly ① by turning it in arrow Ⓐ direction.
2) Removal the spring ②.
3) TG6 guide roller assembly ③ by turning it in arrow Ⓑ direction.
4) Removal the spring ④.

[Note on Mounting]

- Keep clean the surface contacts tape of TG3 and TG6 guide roller assemblies ①, ③.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

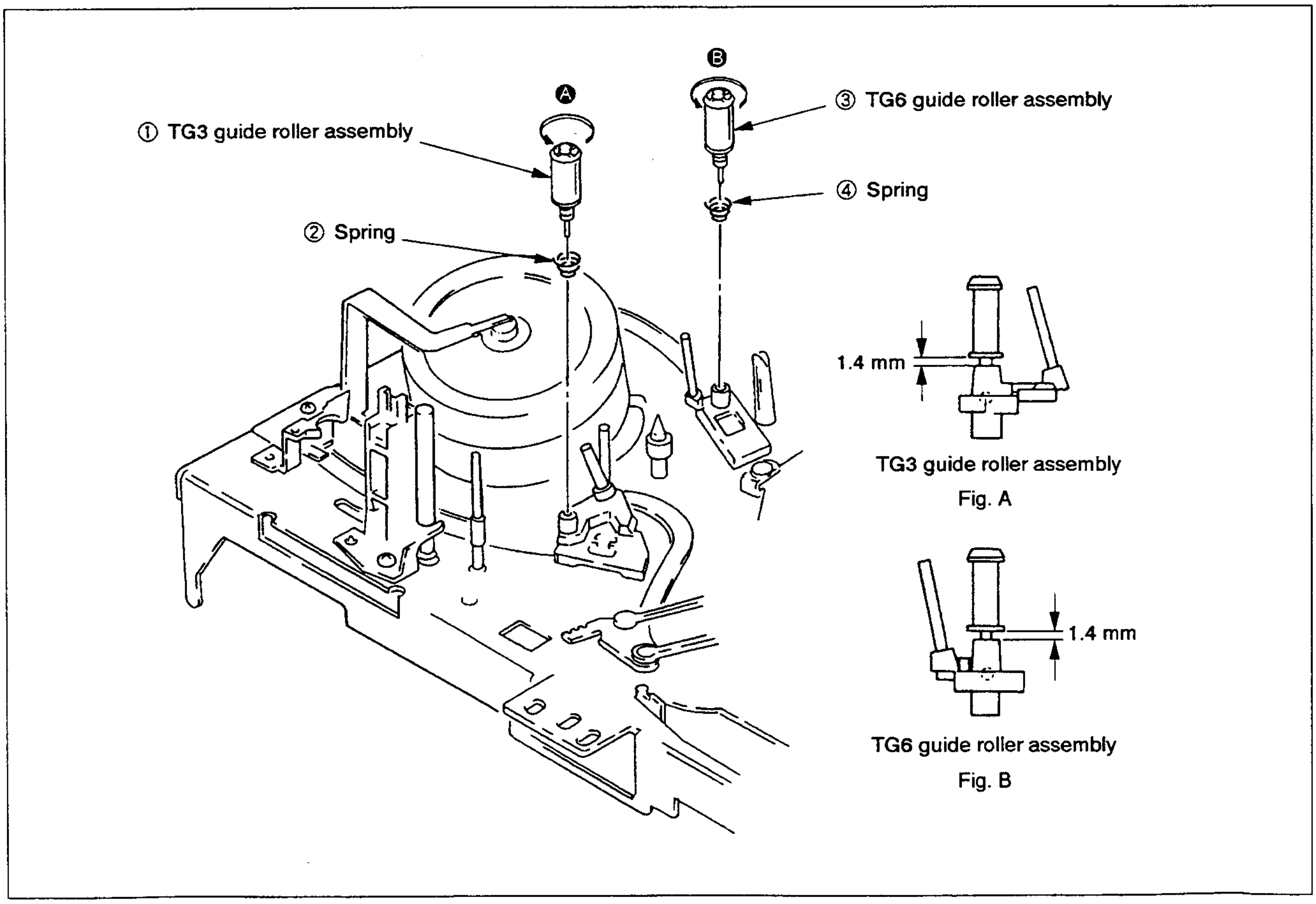
Ⓑ
Ⓐ
③ TG6 guide roller assembly
① TG3 guide roller assembly
④ Spring
② Spring
1.4 mm
TG3 guide roller assembly
Fig. A
1.4 mm
TG6 guide roller assembly
Fig. B

Fig. 3-8

2-4. TG8 ASSEMBLY (Refer to VHS Mechanical Adjustment Manual Ⅳ page 23)

- As the shape of TG8 assembly was changed, Section 3-13 is changed.

☛ : Chenged portion

3-13. TG8 ASSEMBLY (Fig. 3-15)

1) Remove TG7 tape retainer ① to pull out TG8 assembly ②.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portion.
- Keep clean the surface contacts tape of TG8 assembly ②.
- Be careful not to change the shape of TG7 tape retainer ①.
- After attaching the TG7 tape retainer ①, check that side Ⓐ of ① is below side Ⓑ of the stepped-part of the TG7 shaft. (Fig. A)

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

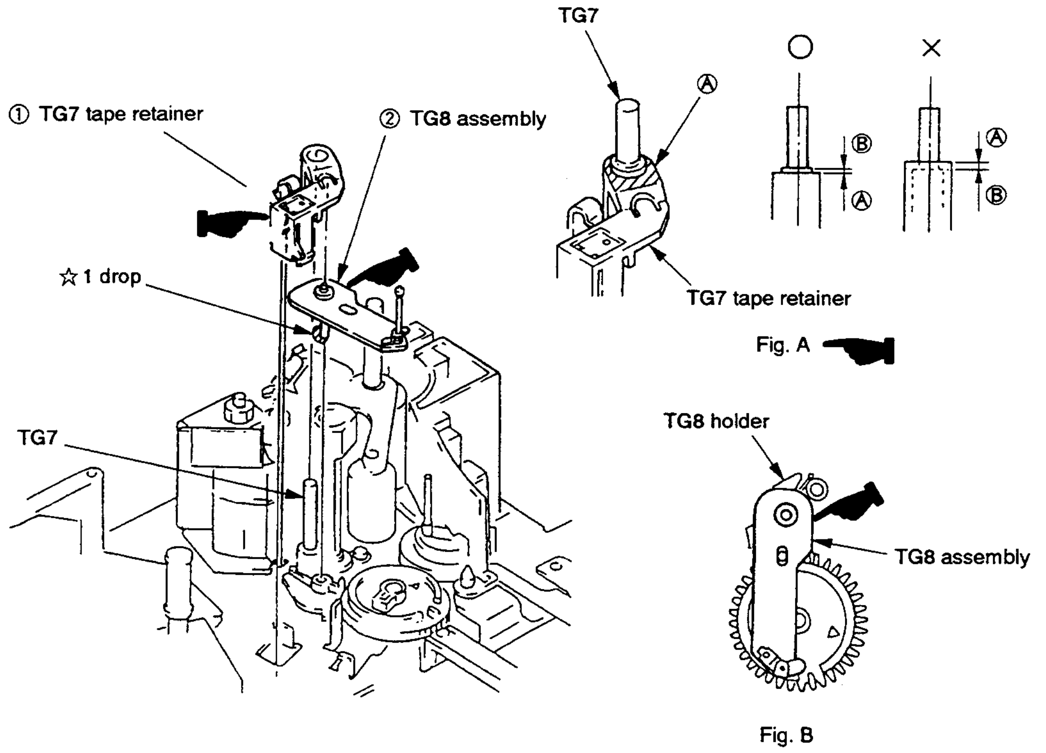
TG7
① TG7 tape retainer
② TG8 assembly
☆1 drop
TG7
Ⓐ
○
×
Ⓑ
Ⓐ
Ⓐ
Ⓑ
TG7 tape retainer
Fig. A
TG8 holder
TG8 assembly
Fig. B

Fig. 3-15

2-5. TENSION REGULATOR (TG1) POSITION/ TENSION ADJUSTMENT (Refer to VHS Mechanical Adjustment Manual Ⅳ page 35)

- As the tension regulator position and tension adjustment were changed, the tension adjustment and Fig. 4-1 are changed.

☛ : Changed portion

- **Tension adjustment**

Mode	Playback
Measuring instrument/tool	Torque cassette
Adjustment locations	Position for hooking the tension spring
Specified value	34 ± 4 g•cm ☛

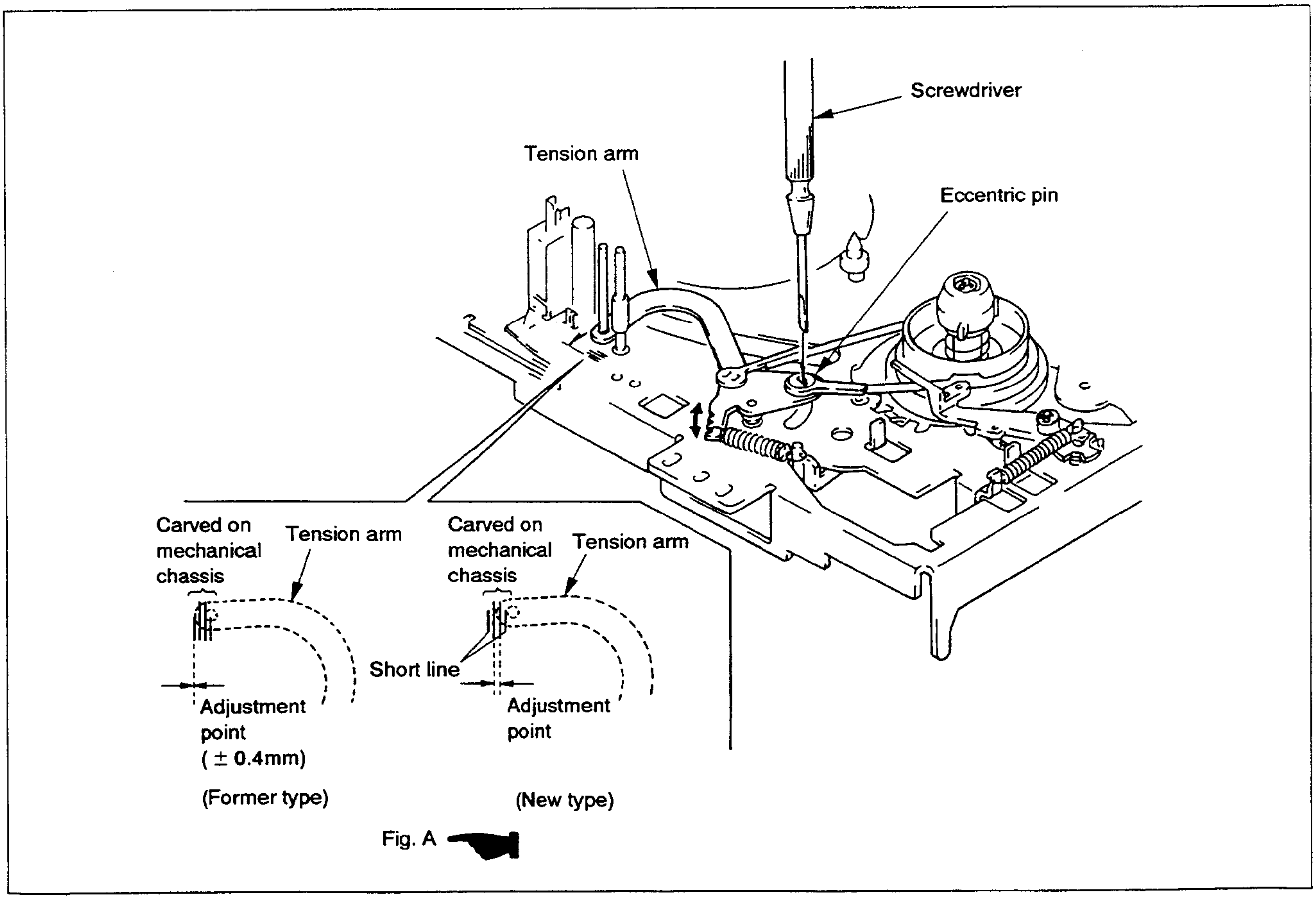
Screwdriver
Tension arm
Eccentric pin
Carved on mechanical chassis
Tension arm
Adjustment point
(± 0.4mm)
(Former type)
Carved on mechanical chassis
Tension arm
Short line
Adjustment point
(New type)
Fig. A ☛

Fig. 4-1

2-6. TG8 GUIDE ROLLER HEIGHT ADJUSTMENT (Refer to VHS Mechanical Adjustment Manual Ⅳ page 36)

- As the use of TG8 height adjusting screw was cancelled, section 4-1-2 is changed.

4-1-2. TG7 TAPE PATH ADJUSTMENT (Fig. 4-2)

[Adjustment Method]

1) Load a tape, and playback the tape in the CUE mode, confirm the distance between lower flange of No. 7 guide roller and lower side of tape (Fig. A).
2) Then, feeding the tape in the REV mode, confirm the distance between lower flange of No. 7 guide roller and lower side of tape.
3) If the tape height in the REV feed is higher that in the CUE playback (Fig. B), rotate the ACE head flapping adjust screw in the direction Ⓐ so that a difference in tape height between CUE mode and REV mode becomes zero.
4) If the tape height in the REV feed is lower that in the CUE playback (Fig. C), rotate the ACE head flapping adjust screw in the direction Ⓑ so that a difference in tape height between CUE mode and REV mode becomes zero.

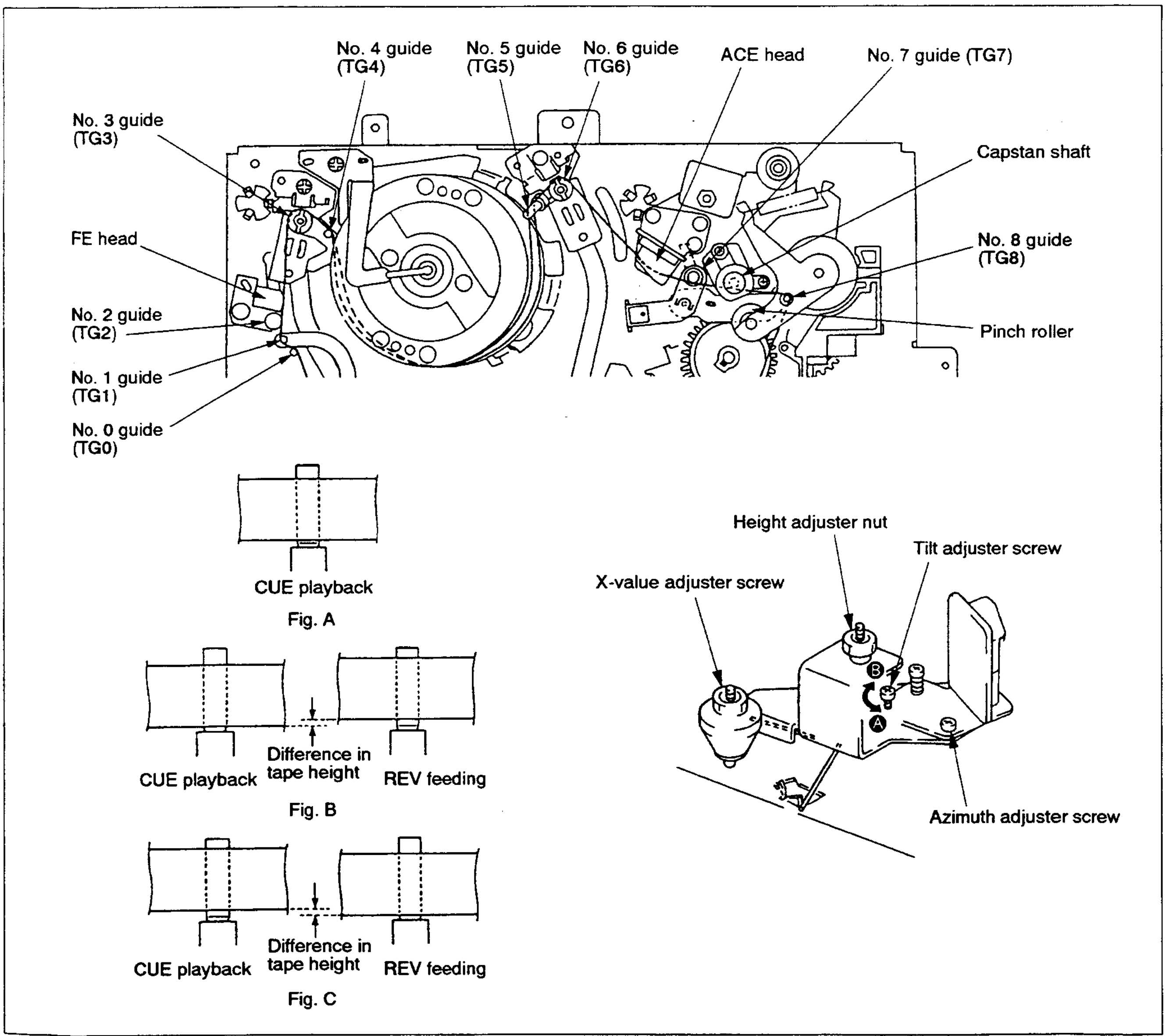
No. 4 guide (TG4)
No. 5 guide (TG5)
No. 6 guide (TG6)
ACE head
No. 7 guide (TG7)
No. 3 guide (TG3)
Capstan shaft
FE head
No. 8 guide (TG8)
No. 2 guide (TG2)
Pinch roller
No. 1 guide (TG1)
No. 0 guide (TG0)
CUE playback
Height adjuster nut
Tilt adjuster screw
X-value adjuster screw
B
A
Azimuth adjuster screw
Difference in tape height
CUE playback
REV feeding
Difference in tape height
CUE playback
REV feeding

Fig. A

Fig. B

Fig. C

Fig. 4-2

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